CHEMICAL LIBRARY

NOV 26 1927

The Great Questions Confronting Us To-day in Pharmacy and the Drug Business Are as Vital and Important to Their Progress as Were the Questions Which Prompted the Organization of the American Pharmaceutical Association.

Vol. XVI, No. 11 NOVEMBER, 1927

JOURNAL

OF THE

AMERICAN PHARMACEUTICAL ASSOCIATION

TRADE MARK

CONTENTS

Frontispiece and Sketch—Augustus Carrier Taylor 1023
Editorial:
Commissions for Pharmacists in the Reserve Army 1024
Is Pharmacy Week Worth While? 1027
Scientific Section:
The Constants of Chloroform Liniment—Warren 1029
The Ephedrine Assay of Chinese Ephedra—Feng and Read 1034
The Quantity of Alkaloid in Hyoscyamus and a New Method for Its Evaluation—Watkins and Palkin 1039
The Biological Assay of Aconite—Jauregui 1045
A Study on Some Calcium and Magnesium Salts of Commerce—Colin 1053
A Pharmacological Note on Baptisia Tinctoria—Macht and Black 1056
A Phase of the Relationship of Chemical Structure to Pharmacological Action—Bauer 1059
Suggested Standards for Chloroform Liniment—Amrhein and Macleod 1062
Bibliography of Pharmaceutical Research—DuMez 1065
Pharmaceutical Analysis in Hospital Pharmacies of China—Cameron 1068
Schieffelin & Co.—The Oldest Wholesale Drug House in New York City—Raubenheimer 1071
The State Association Proceedings as Sources of Authentic Historical Material—Wulling 1074
Some Observations on Present-Day Retail Pharmacy—Rose 1075
Department of Business Management:
The Psychology of Effective Display 1079
The Department of the National Association of Boards of Pharmacy:
How State Boards Prevent Cheating in Examinations 1083
Keeping Tab of the Roamers—Winne 1085
General News Items 1085
State Board News Items 1086
The Department of the American Association of Colleges of Pharmacy:
Dr. William Brown, Physician-General to the America Army—Gahn 1090
Proceedings of the Local Branches 1092
The Sections of the American Pharmaceutical Association 1095
Association Business 1117
Editorial Notes 1120
Personal and News Items 1122
Obituary 1124
Societies and Colleges 1125
The Pharmacist and the Law 1128
Book Notices and Reviews 1128
Advertising—Cover pages 2, 3 and 4 and pp. I–XXVI.

Published Monthly by the American Pharmaceutical Association: Office of publication, 20th & Northampton Sts., Easton, Pa. Editorial Office, 10 West Chase Street, Baltimore, Md.

Annual Subscription, $4.00; Single Numbers 35 Cents.

THE SEVENTY-SIXTH ANNUAL CONVENTION WILL BE HELD AT POLAND SPRINGS, ME., SEPTEMBER 1928.

The 1928 Meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, Conferences of Pharmaceutical Research and of Pharmaceutical Association Secretaries will also be held at Poland Springs, same time and place.

For Association Roster and Roster of the Boards of Pharmacy, of Officers of Pharmaceutical Associations, Local Branches, see pages x, xii, xiv, etc.

Entered as second-class Matter, January 23, 1917, at the Post Office at Easton, Pa., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103. Act of October 3, 1917; authorized July 10, 1918.

MARINOL

The Mineral elements of seaweed and sea water with Cod Liver Oil of verified vitamin potency.

8 oz. bottles—$8.00 per dozen
2 oz. Trial size to retail at 35 cents each.

FAIRCHILD BROS. & FOSTER **New York**

Display the Sign of the Prescription Pharmacy

TRADE MARK

PERALGA

Reg. U. S. Pat. Off.

Announcing Change in Grainage of Peralga Tablets, Effective November 1st.

Three-Grain Tablets in tins of twelve and bottles of one hundred replaced by **Six-Grain** Tablets in vials of six and twelve and in bottles of fifty.

Wholesalers are authorized to effect exchange.

Pharmacists are requested to call the attention of physicians to this change whenever the prescription is still based upon the three-grain tablet.

Adult Dose: 6–12 grains (1 to 2 of the New Tablets)

SCHERING & GLATZ, Inc.

BLOOMFIELD, N. J. **NEW YORK**

AN OPPORTUNITY TO RENDER SERVICE.

IT IS deserving of serious thought that pharmacy has a large part in all legislation applying to the drug business—it *is* because "the druggist is more than a merchant."

"We cannot expect the public to pay us the respect due to professional men if we do not ourselves appreciate the professional character of our work. On the other hand, we cannot succeed in pharmacy unless we practice good business methods. The division of the work of the ASSOCIATION exemplifies the principles we have just stated, as Sections have been established and developed to satisfy the needs of the organization."—Ex-President Theodore J. Bradley.

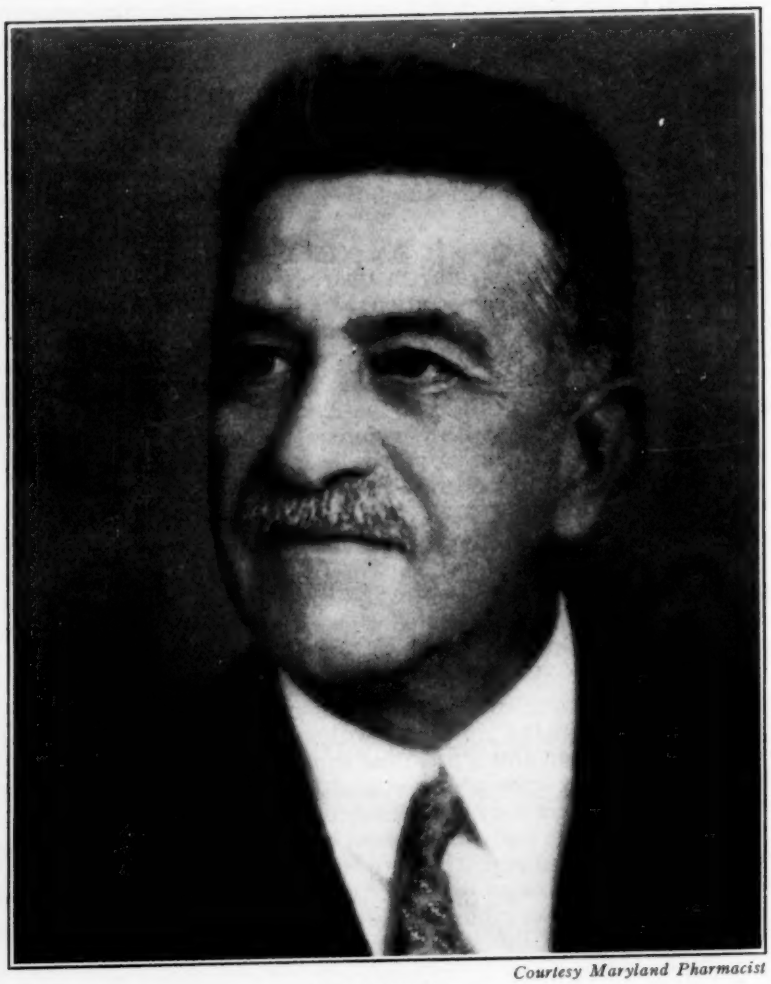
"The House of Delegates was established as a clearing house for all matters pharmaceutical be it local, State, or national. It is *the* place where the State Associations can present their difficulties and where a free and open discussion is assured to all."—Jacob Diner, former Chairman of House of Delegates.

"The AMERICAN PHARMACEUTICAL ASSOCIATION has accomplished, directly and indirectly, more for the upbuilding of pharmacy in America than any other organization. It is the mother association of nearly all pharmaceutical associations. In order that it may continue to serve pharmacy and serve it well, it needs the loyal support and coöperation of every member of this Association, and I would recommend that every member of the National Association of Boards of Pharmacy, who is not now a member of the AMERICAN PHARMACEUTICAL ASSOCIATION, affiliate by membership with our parent ASSOCIATION, and in this small way at least acknowledge our debt of gratitude for the invaluable services rendered."—Wilford Harrison, former President N. A. B. P.

"The twenty-eighth annual convention of the American Association of Colleges of Pharmacy meeting here in St. Louis with the AMERICAN PHARMACEUTICAL ASSOCIATION, holding its Diamond Jubilee, and the National Association of Boards of Pharmacy, commemorates the advance which has been made by organization, coöperation and individual work."—D. B. R. Johnson, former President A. A. C. P.

"Through all these years, covering more than half the life of the Republic, the ASSOCIATION has conducted its labors without ostentation or self-advertisement. Its existence has been and is practically unknown to the great public whose interests it has so faithfully tried to serve, and sadder still to state, its existence and purposes are but indifferently well known even to the great mass of retail druggists who receive a direct daily and almost hourly profit from its contributions to the art and science of pharmacy. If there is discredit in this, it rests upon those who are either too blind to see or too selfish to confess their indebtedness to the influence upon which their very business life depends."—J. H. Beal.

"Your support of the AMERICAN PHARMACEUTICAL ASSOCIATION, as a member, is evidence that you believe in its worth and are convinced that you receive five or more dollars' worth in return for your money. I am confident that it would be a very easy task for each member of the AMERICAN PHARMACEUTICAL ASSOCIATION to secure *Just One New Member*. All it takes is the effort to solicit a pharmacist who does not now belong to the ASSOCIATION and the *Confidence* in yourself that you are selling him something that is worth while. In the advertising section, p. xxii, you will find an *Application Blank*. Will you make use of it at once and if your enthusiasm is running high, send in the name of another applicant and write to Secretary E. F. Kelly, 10 West Chase St., Baltimore, for more blanks?" —President C. W. Johnson.



Courtesy Maryland Pharmacist

A. C. TAYLOR.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XVI NOVEMBER, 1927 No. 11

AUGUSTUS CARRIER TAYLOR.

The President of the National Association of Boards of Pharmacy is a native of the "Lake State;" the parents moved from Detroit to Cape Vincent, N. Y., and later to Washington, D. C. The youth was educated in the public schools of the Capital City and, in due time, graduated from National College of Pharmacy (now the College of Pharmacy of George Washington University); thereafter he studied medicine for two years at the Medical School of Georgetown University.

For several years Mr. Taylor was employed by Bartlett and Plummer at 37th Street and 5th Avenue, in New York City, a location which brought him into business contact with some of the great financiers and business men of that day, who were patrons of this store, among them John Jacob Astor and A. T. Stewart. For about 35 years Mr. Taylor has been successfully engaged in the drug business in Washington and is highly regarded by his patrons and fraters. He is interested in health promotions, civic improvements and educational advancement and holds membership in the Stanton Park Citizens' Association. Quite a few of the Nation's distinguished citizens are patrons of his pharmacy.

President Taylor expresses his belief in organizations by active participation. He is Secretary-Treasurer of the District of Columbia Retail Druggists' Association and of the Veteran Druggists' Association, and served for four terms as President of the former. His association activities are by no means limited to the District of Columbia for he coöperates effectively with the Maryland Pharmaceutical Association as an Associate Member, with the N. A. R. D. and the A. PH. A., especially in legislative matters. When the A. PH. A. Branch was organized in Washington, he became the first presiding officer.

He has been member of the District of Columbia Board of Pharmacy since 1906 and its President for fifteen years. His election to the Presidency of the National Association of Boards of Pharmacy is a recognition of services rendered by him and these have pointed him out as one well qualified by experience and training for the office. Mr. Taylor has contributed largely to the great work the N. A. B. P. has done for pharmacy, which speaks for its continued progress during his year of office.

EDITORIAL

E. G. EBERLE, EDITOR 10 West Chase St., BALTIMORE, MD.

COMMISSIONS FOR PHARMACISTS IN THE RESERVE ARMY.

IN THE reorganization of the Army, following the World War, the "Medical Administrative Corps" was created as a special unit of technical experts to coöperate with the Medical Corps.

A limited number of Commissions have been available for expert phamacists, who also possessed the necessary military training, as explained below in a letter recently received from Surgeon-General Ireland. But as the regular Army is small, the chief opportunity, as was expected, is to be found in the Reserve Corps.

Pharmaceutical service rightly occupies an important place in the Medical Service of the Army as this group of technically-trained experts should be responsible for drugs and supplies, which in times of war runs into a cost of millions of dollars. They should also be entrusted with maintaining the quality and standard of these supplies when furnished on contract, and, as probably their most important duty, highly trained pharmacists should be in charge of the supply and the dispensing of prepared and extemporaneous medicines, antiseptics and sterile products required in every large Army hospital or organized medical unit.

One feature of the Reserve Army plan is summer training camps. The Medical Corps and its associated unit, the Medical Service Corps, is now being called into short term camps, throughout the summer, so far as appropriations permit, and pharmacists, who have already obtained Commissions in this Reserve Corps, are included, according to a recent statement by Surgeon General Ireland of the Army.

At the annual meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION the House of Delegates passed the following resolution:

> *"Resolved:* That the AMERICAN PHARMACEUTICAL ASSOCIATION in annual convention assembled earnestly urge the establishment and annual maintenance of a summer training camp at Carlisle for pharmacists who have received commissions in the Reserve Division of the Medical Service Corps of the U. S. Army. We believe that such action will greatly stimulate the interest of trained and competent pharmacists in this important division of the Army and will do much toward the development of this essential section of the medical service."

When Dr. Ireland's attention was called to this request his reply was very gratifying in that he gave assurance that this desired opportunity was already in operation and a definite feature of the plan of organization for the Medical Service of the Army.

Dr. Ireland writes:

> "I am in receipt of your communication of August 29th relative to the possibility of training at Carlisle, qualified pharmacists who are members of the Medical Administrative Corps Reserve.
>
> "At the inception of the present Reserve Corps project yearly training for fifteen-day periods was contemplated for all Reserve Corps units, but Congress has seen fit to so curtail appropriations for this purpose that it is now impossible to train all who apply. Under these circumstances it has become the policy to

extend opportunities for training in proportion to relative strength of the various sections of the Medical Department in so far as it is possible to make this plan fit in with the idea of training those who are to hold key positions in units in case of emergency.

"You are probably aware that a knowledge of pharmacy is one of several qualifications for which commissions are offered in the Medical Administrative Corps Reserve. The duties of this Corps in time of emergency will involve a variety of functions to which it is attempted to assign members who are specially qualified by fact of occupation in civil life to fill each requirement. By this plan of selection and assignment to duties appropriate to their training in civil life the necessity for training along special lines is obviated, and it then becomes necessary to give them only such training as will enable them to apply their knowledge in a military organization.

"The present allotment of funds for the purpose of training Medical Department Reserve Corps personnel and the limited training facilities available at Carlisle precludes conducting a special course for training pharmacists. As heretofore, pharmacists as members of the Sanitary Corps or Medical Administrative Corps Reserve, are given the privilege of active duty training in so far as possible in proportion to their relative strength of the Medical Department. Those assigned to definite units are trained with their respective units. Some of this training is given at stations other than Carlisle because of the expense involved in transportation. This, however, applied alike to all sections of the Medical Department.

"It would appear that what you desire is already being done, that is, a certain number of Medical Administrative Corps Reserve officers are being trained with their respective units, some of which, because of the distance from Carlisle, are being trained in camps nearer their home station.

"I desire to express my appreciation for your interest in procuring and training a qualified Medical Administrative Corps Reserve."

Pharmacy faces an opportunity and a patriotic duty. It is highly desirable that professional pharmaceutical service should be available and properly organized, as a feature of the Medical Division of the Army. The Reserve Corps makes it possible for a number of properly qualified pharmacists to secure these commissions and thus gratify that inborn desire to perform a patriotic duty and at the same time prepare for and perform pharmaceutical service in the Army.

Those who believe themselves qualified through adequate pharmaceutical training, and through the possession of those other personal and administrative qualities essential in an efficient officer, are urged to apply for a commission in the Reserve Corps.

Information can be obtained through the office of the Surgeon General of the Army, Washington, D. C.

Surgeon General Ireland has just supplied the following detailed information concerning the organization and function of the Medical Department Reserve of the Army, especially that pertaining to the Medical Administrative Corps, in which section registered and graduate pharmacists can most effectively assist in national defense.

"In the reorganization of the Regular Army following the World War, Congress authorized the Medical Department to consist of the Medical Corps, Dental Corps, Veterinary Corps, Medical Administrative Corps, a number of enlisted men and the Army Nurse Corps. The number of officers authorized for the Medical Administrative Corps of the Regular Army was fixed at one for every two thousand of the total enlisted strength of the Regular Army. To be eligible for examination for appointment in the Medical Administrative Corps of the Regular Army it is now required that the applicant have two years' service as an enlisted man in the

Medical Department of the Regular Army. Appointments are made to fill vacancies from among those who pass the prescribed examination. This examination consists of a physical examination, examination for moral character and general fitness, educational examination and professional examination. The professional examination embraces the following subjects:

1. Army Regulations, special regulations, orders, bulletins and circulars relative to Medical Department Administration.
2. Office organization and administration including the duties of an Adjutant and Registrar.
3. Mess management.
4. Property accountability and responsibility.
5. Manual of Courts Martial.
6. Oral and practical examination to determine candidate's capability to perform duties of Detachment Commander.
7. Examination in special training along some line of Medical Department work if requested by the candidate.

"Congress, in the Act of June 4, 1920, made provision for an Officers Reserve Corps to be composed of Reserve officers available for military service when needed and authorized sections corresponding to those of the various branches of the Regular Army. Based on this authority there has been constituted as a part of the Medical Reserve Department the Medical Administrative Corps Reserve composed of officers who are qualified by profession or training to assume duties similar to those of the Medical Administrative Corps of the Regular Army. The War Department authorized the appointment of officers in the Medical Administrative Corps Reserve who possess as knowledge qualification a high school education or its equivalent and who possess special training which will qualify them as property officers, pharmacists, mess officers and administrative officers such as adjutants, registrars, etc. Evidence of satisfactory standing and at least three years' experience and progress in duties in civil life or military service analogous to the Medical Administrative Corps will be accepted as satisfactory evidence of qualifications for appointment in the lowest grade of the Medical Administrative Corps Reserve in lieu of professional examination.

"It will be noted from the above that the qualification as pharmacist is only one of the several qualifications which are considered satisfactory for appointment in the Medical Administrative Corps Reserve. There is no function which the Medical Administrative Reserve Corps officer is called on to perform which would justify the appointment of a commissioned officer with the view of assigning and utilizing his services for duties requiring only the compounding and dispensing of medicines. The Medical Administrative Corps Reserve Officer must possess additional military qualifications. In other words, a commission in the Medical Administrative Corps Reserve which is based on the applicant's experience in pharmacy will have to be supplemented with other qualifications subsequent to such appointment before being eligible for promotion to a higher grade than that of 2nd Lieutenant which is the lowest. The War Department provides through its correspondence courses facilities for acquiring the additional training necessary for promotion to higher grade. The correspondence courses are intended to provide a means whereby officers of the Reserve Corps can of their own initiative and at their leisure time by individual effort acquire the knowledge necessary to make them eligible for promotion after having served the required number of years in grade. In addition to this method of training a limited number of officers of the Medical Department Reserve, including Medical Administrative Corps Reserve, are ordered to active duty at some training camp for the purpose of field training, where opportunity is offered to apply practically the theoretical knowledge gained through enrollment in correspondence courses.

"As in all Medical Department training for the Reserve Corps, it is not the policy to give Medical Administrative Corps officers training along purely professional lines. In other words, the medical officer will not be trained in surgery and internal medicine, neither will the pharmacist be trained in pharmacy. Such training as is provided will be given with the view of enabling the Reserve Officer to apply his professional knowledge in a military organization. There is no unit of the Medical Department composed entirely of Medical Administrative Corps officers. The Medical Administrative Corps officer is assigned with Medical Department units in such

numbers as required to care for the functions for which they are especially qualified and which are needed in the particular organization concerned. Logically they are given training with the unit so that they will understand their part in the team play which is necessary for a smooth working organization. They are not trained in separate camps composed entirely of Medical Administrative Corps officers.

"In addition to active duty training with their respective units it is the policy to offer at Carlisle Barracks, Pa., and other training camps an opportunity for individual training of members of the Medical Administrative Corps Reserve in numbers corresponding to their relative strength of the Medical Department as a whole. At the present time funds for active duty training are so limited as to preclude the training of all who apply.

"I desire to express my appreciation for your interest in national preparedness as indicated by your desire to coöperate in an effort to obtain the application of qualified pharmacists for the Medical Administrative Corps Reserve."

E. FULLERTON COOK.

IS PHARMACY WEEK WORTH WHILE?

IN THIS morning's mail, the writer received from Mr. L. J. Trudel, a prominent pharmacist at Rutland, Vermont, an article which appeared on Friday of Pharmacy Week in the Rutland *Daily Herald*. The article brought to the writer's mind the remark of a certain editor who, in commenting upon Pharmacy Week, said, "The calender is so clogged with special weeks observing one thing or another, that in order to make room for them all, they ought to combine Corn Week and Bean Week and call it Succotash Week."

The article by the Vermont editor, appearing in a column entitled "Peregrinations," follows:

Pharmacy Week hasn't made so much of a stir, chiefly for the reason that the pharmacists are all pretty busy themselves and the newspapers pretty well fed up with weeks of all kinds.

The week part of it doesn't interest me at all, but the idea that the national association is fathering does. The druggist as a professional man rather than a merchant, or perhaps more than a merchant, is something that isn't any too clear, either in the big cities or hereabout.

The druggist's is a well-recognized profession, with a State governing board, State and national associations, but where one person thinks of the drug store as a place to buy medicines or have medicines made up, two at least think involuntarily of a soda fountain, cigar counter, place to buy toilet articles, quite likely with suggestions of any one of five-score other articles, now procurable at the drug store.

For some reason, certain lines of merchandise have gravitated more or less naturally to the drug store or pharmacy, but the professional end of the job hasn't slacked off any. Couldn't, without poisoning half the community.

Suggesting that out of the thousands of prescriptions filled and on file in local drug stores, how many ever showed up an error? Considering the sort of hand-writing used by most doctors, the abbreviated terms, the use of new remedies and compounds, the constantly changing Pharmacopœia, this in itself stamps the profession of pharmacy as highly skilled, important and strictly dependable.

So when the national association undertakes to emphasize this unquestioned fact, it harks back to the older days when the druggist (or chemist in England) was on a par with the doctor, did emergency and first-aid operations, administered medicines and was a person of high professional standing.

He is yet, in circles where this sort of thing is appreciated and understood, so the slogan "more than a merchant" has no suggestion of a slam against merchandizing, but just constitutes a strong and definite implication that the important part of a pharmacist's job is to practice pharmacy, which he does, nowadays, pretty efficiently—and does considerable merchandizing as well.

It will be noted that after the good Vermont editor, in a paragraph and a little more, exhausts his contempt and aversion for "special weeks," he launches forth upon a splendidly constructive story, stressing pharmaceutical service. He calls forth from the recesses of his mind many splendid parts of the pharmacists' rôle, with which he is familiar, and his story appears in priceless printer's ink to bring to the public mind a fuller realization and deeper appreciation of the valuable contribution of pharmacy and its importance in public health conservation.

And so we say, "What! No Pharmacy Week?" Well, ask yourself and answer yourself honestly, "Would that Vermont editor have written a stick about pharmacy had it not been Pharmacy Week? Did he ever write anything about pharmacy before the inception of Pharmacy Week?" "We" happen to be the National Chairman of Pharmacy Week and we grinningly contemplate your mental answer.

The writer wishes that you could sit with him at his desk to see each mail bringing reports from State, district and local Pharmacy Week chairmen, association officers, deans of colleges and individual pharmacists, all telling with enthusiasm of the observance of National Pharmacy Week as it was carried on throughout the nation—hundreds of full-page and smaller newspaper spreads, thousands of news stories and editorials appeared in the newspapers throughout the country, enough to paper the proposed Pharmacy Headquarters Building; scores of radio talks were broadcast and hundreds of service clubs were addressed; thousands of cards appeared in the street, surface and elevated cars; and thousands upon thousands of Pharmacy Week windows in the drug stores of the United States—yes, and in Canada and Australia as well—all telling the story of pharmacy and pharmaceutical service to the public. Is Pharmacy Week worth while?

"Weeks" may come and "weeks" may go—many of them have gone—but Pharmacy Week will live and grow and accomplish its purpose. Why? Because it is based upon a strictly unselfish principle. It is not commercial—all it has to sell is public health service. "Paint Your House Week," "Wear Your Rubbers Week" and "Eat More Spaghetti Week," may die out and go to the final resting place set aside for all special weeks which have passed on because they had only selfish interests for their foundations, but Pharmacy Week will live on just as long as it deserves to live.

When the Pharmacy Week reports all reach National Headquarters, the writer will compile a story covering the national observance and it will be released to all of the journals of pharmacy. They will publish it and you will read it and know that *Pharmacy Week is worth while.*—R. J. R.

Aid Annual Red Cross Roll Call.

Prepare for the Sale of Christmas Seals.

SCIENTIFIC SECTION

THE CONSTANTS OF CHLOROFORM LINIMENT.*

BY L. E. WARREN.†

More than a year ago the writer was informed by the chief control chemist of a pharmaceutical manufacturing establishment that the determination of chloroform in chloroform liniment in production control was causing trouble, the results obtained always coming below theory. Inquiry established that the method of assay employed was similar to one that had been used in coöperative trials by the Association of Official Agricultural Chemists several years ago.[1] The literature was searched to ascertain what had been the results reported in the analysis of chloroform liniment by other analysts. Only one complete analysis of the preparation was found,[2] although several methods for the determination of chloroform in pharmaceuticals have been published, some of which have been applied to the analysis of the liniment.[3,4,5,6,7,8]

Chloroform liniment is described in several foreign pharmacopœias but the composition of the product in the various countries differs considerably from that of the U. S. Pharmacopœia X article. This paper deals only with the U. S. Pharmacopœia preparation. The Pharmacopœia gives directions for the preparation of chloroform liniment by mixing chloroform and soap liniment, but it does not provide any standards for the finished product. Further, an examination of the available literature indicates that but very little information concerning the physical constants and standards for the liniment could be found. Because of this dearth of knowledge concerning such a well known and widely used product it seemed desirable to ascertain the constants of an authenticated specimen.

Soap liniment was prepared strictly according to the U. S. Pharmacopœia. The powdered castile soap used was labeled as of U. S. Pharmacopœia quality. On drying it lost 1.7% of its weight, whereas the U. S. Pharmacopœia permits 10% loss. The chloroform used had a specific gravity of 1.4759 at 25/25° C. The U. S. Pharmacopœia limits for the specific gravity of chloroform are 1.4740 to 1.4780. The camphor used had an optical rotation of +41° (angular) at 20° C. in a 10% solution in alcohol in a 100-mm. tube. The soap liniment pre-

* Scientific Section A. PH. A., St. Louis meeting, 1927.

† Drug Control Laboratory, Food, Drug and Insecticide Administration, Washington, D. C.

[1] A. G. Murray, "Report on the Determination of Chloroform in Drug Products," *Jour. A. O. A. C.*, 5, 539 (1922).

[2] J. W. E. Harrisson, "Rate of Volatility of Chloroform from Chloroform Liniment," JOUR. A. PH. A., 12, 333 (1923).

[3] L. de Saint Marten, *Compt. rend.*, 106, 492 (1888).

[4] W. A. Puckner, "The Estimation of Chloroform," PROC. A. PH. A., 49, 294 (1901).

[5] J. L. Mayer, "A Rapid, Accurate Method for the Quantitative Estimation of Chloroform in Chloroform Liniment," JOUR. A. PH. A., 1, 1155 (1912).

[6] E. B. Putt, "Determination of Chloroform in Cough Syrups," *Am. Food J.*, 10, 467 (1915).

[7] Schlicht and Austen, "Estimation of Chloroform and Other Volatile Substances," *Z. öffentl. Chem.*, 26, 55 (1920).

[8] O. Sasse, "Estimation of Chloroform," *Pharm. Ztg.*, 65, 559 (1920).

pared as above described had a specific gravity of 0.8873 at 25/25° C. It gave a residue of 6 Gm. per 100 cc. on drying on sand at 100° C. Its optical rotation was +1.80° (direct angular reading) at 20° C.

Three lots of chloroform liniment were prepared by mixing 700 cc. of soap liniment with 300 of chloroform as directed by the Pharmacopœia. Three other lots of liniment were prepared, two of which contained somewhat less chloroform than the Pharmacopœia prescribes and the other slightly more. The formulas for these six lots of liniment are given in Table I.

TABLE I.

COMPOSITION OF SEVERAL SPECIMENS OF CHLOROFORM LINIMENT PREPARED FOR ANALYSIS.

Sample no.	Chloroform volumes.	Soap liniment volumes.
I	30	70
II	30	70
III	27	73
IV	29	71
V	31	69
VI	30	70

Each of these samples was analyzed by the writer with particular reference to the specific gravity, optical rotatory power and yield of solids on drying. Chloroform and alcohol were determined in some of the specimens. After preliminary trials the following tentative methods were selected for use.

SPECIFIC GRAVITY.

Determine the specific gravity at 25/25° C. by means of a pycnometer.

TOTAL SOLIDS.

Place about 1 Gm. of sand and a small stirring rod in a beaker of about 150-cc. capacity, dry the apparatus at 110° for 1 hour, cool and weigh. Add 10 cc. of chloroform liniment by means of a pipette. Evaporate the mixture on the steam-bath with occasional stirring until the odor of camphor has disappeared. Dry the residue in an oven at 110° to constant weight.

OPTICAL ROTATORY POWER.

Determine the optical power at 20° in a 100-mm. tube and report the findings in angular degrees. If the material be too dark for direct reading, dilute it with one or more volumes of alcohol at 20°.

CHLOROFORM.[1]

By means of a pipette place 10 cc. of chloroform liniment in a 100-cc. graduated flask and fill to the mark with methyl alcohol. Mix thoroughly. By means of a pipette place 10 cc. of the diluted solution (equivalent to 1 cc. of chloroform liniment) in a 200-cc. volumetric flask containing 40 cc. of 30% potassium hydroxide in methyl alcohol. Shake the mixture occasionally for one or two hours and allow to stand over night. Fill to the mark with water. Mix thoroughly, and use 50-cc. aliquot portions for the determination of chloride either gravimetrically or volumetrically.

Gravimetric Determination.—Place 50 cc. of the dilution in a beaker and add an equal volume of water. Heat on the steam bath, add a drop of methyl red test solution as indicator and add 5 cc. of nitric acid with stirring, or a sufficient quantity to render the mixture distinctly pink. Add 25 cc. of silver nitrate test solution with stirring, heat for half an hour on the steam-bath with occasional stirring, collect the silver chloride in a tared Gooch crucible, dry the precipitate at 100° and weigh in the usual way. A blank should be carried through with the reagents and a correction applied if necessary.

[1] This method is still under investigation by the A. O. A. C. because of the suspicion that it gives low results. This will be mentioned again.

$$AgCl \times 0.27764 = CHCl_3$$

Volumetric Determination.—Place 100 cc. of the alkaline solution in a 200-cc. volumetric flask, add 10 cc. of nitric acid and 60 cc. of 0.1 *N* silver nitrate, make up to the mark with water, stopper the flask and shake well. Filter through a dry filter, reject the first 20 cc. of the filtrate, collect 100 cc. of the filtrate and titrate the excess silver in the solution with 0.1 *N* potassium sulphocyanate, using 5 cc. of ferric ammonium sulphate test solution as indicator.

$$1 \text{ cc. } 0.1\ N\ AgNO_3 \text{ solution} = 0.00398 \text{ Gm. of } CHCl_3$$

ALCOHOL.

Place 50 cc. of saturated salt solution, 25 cc. of petroleum benzin, and 25 cc. of the liniment in a separator. Agitate gently and allow to separate. Draw off the aqueous layer into a second separator, shake the solution thoroughly[1] with 25 cc. of petroleum benzin and after separation draw the aqueous layer into a distilling flask. Shake the chloroform-petroleum benzin mixture in the first separator with 2 successive portions of 20 cc. each of saturated salt solution and after settling draw off the aqueous solutions into the second separator. Wash each portion of the salt solution in the second separator with fresh petroleum benzin and draw off the aqueous solution into the distilling flash. Add 50 cc. of water and a few glass beads and distil off about 45 cc., collecting the distillate in a 50 cc. graduated flask. Make up to the mark with water, determine the specific gravity of the distillate in a pycnometer and calculate the alcohol in the usual way by reference to the U. S. Pharmacopœia X Alcohol tables.[2]

TABLE II.

ANALYSES OF CHLOROFORM LINIMENT.

Sample no.	Specific gravity.	Solids (soap) Gm. per 100 cc.	Optical rotation.	Chloroform Gm. per 100 cc.	Alcohol.
		4.28	+1.28°	41.88	...
I	1.0561	4.29	+1.21°	41.88	41.71
			.....	41.55	...
		4.38	.....	...	...
II	1.0598	4.39	+1.32°	...	43.25
			.....	37.74	...
		4.41	.....	37.51	...
III	1.0400	4.41	+1.2°	38.20	51.06
			.....	38.62	...
			.....	39.95	...
	1.0538	4.30	.....	41.67	...
IV	1.0502	4.28	+1.71°	41.18	45.82
			.....	41.37	...
			.....	41.26	...
	1.0661	4.17	.....	44.25	...
V	1.0611	4.17	+1.38°	44.17	45.44
			.....	44.26	...
			.....	43.78	...
			.....	42.01	...
VI	1.0557	4.25	.....	42.18	43.82
		4.25	+1.41°	42.97	...
			.....	42.52	...
Theory for normal		4.20	+1.31°	44.05	46.65

[1] Unless care is exercised the determination of alcohol may give low results, owing to the fact that the petroleum benzin-chloroform mixture retains a considerable proportion of alcohol, necessitating *thorough washing* with the salt solution.

[2] U. S. Pharmacopœia X p. 528.

The findings for the several analyses are given in Table II. For comparison the theoretical composition of chloroform liniment as near as may be calculated is also included.

A comparison of the findings for the three specimens of genuine chloroform liniment (I, II and VI) indicates that chloroform liniment should have a specific gravity at 25/25° C. of not far from 1.056 and an optical rotation (direct angular reading) of about +1.3° and should contain about 4.3 Gm. of solids per 100 cc.

The writer asked several collaborators to determine the physical constants of one or more of the specimens of chloroform liniment which he had prepared.

Those submitting reports were:

N. T. Chamberlin, Western Reserve University School of Pharmacy, Cleveland, Ohio.

G. F. Harvey Co., Saratoga Springs, N. Y.

Eli Lilly & Co., Indianapolis, Ind.

Joseph L. Mayer, of the Louis K. Liggett Co., N. Y.

Margaret C. Moore and Cassius L. Clay, State Board of Health, New Orleans, La.

The findings reported by the several investigators are given in Table III.

TABLE III.

CONSTANTS FOR CHLOROFORM LINIMENT.

Investigator.		N. T. C.	Harvey.	Lilly.	J. L. M.	C. & M.
Sample I (normal)	Sp. gr.	1.0505	1.0525	1.0507	1.0488	1.0453
	Rotation	+1.14°		+1.32°	+0.997°	
	Solids	4.29		3.90	4.15	4.56
Sample II (Normal)	Sp. gr.	1.0550	1.0535	1.0538		
			1.0529			
				+1.27°		
	Rotation	+1.14°		+1.31°		
	Solids	4.29		3.73		
			1.0370			
Sample III	Sp. gr.		1.0365			
$CHCl_3$ 27	Rotation					
S. Lin. 73	Solids					
Sample IV	Sp. gr.	1.0560		1.0423	1.0504	
$CHCl_3$ 29				+1.25°		
S. Lin. 71	Rotation	+1.10°		+1.22°	+0.967°	
	Solids	4.28		4.00	4.12	
Sample V	Sp. gr.	1.0658		1.0640	1.0643	
$CHCl_3$ 31				+1.18°		
S. Lin. 69	Rotation	+1.10°		+1.11°	+0.974°	
	Solids	4.10		3.76	3.86	

In a further attempt to obtain information concerning the physical constants of chloroform liniment several workers in schools of pharmacy were asked to prepare chloroform liniment from known materials and to determine the physical constants of the finished preparations. Manufacturers also were asked to report their control findings.

Those reporting were:

N. T. Chamberlin, Western Reserve University School of Pharmacy.
Samuel Shkolnik, University of Illinois, School of Pharmacy.
Parke, Davis & Co., Detroit, Michigan.

The findings are given in Table IV. For comparison the findings as reported by Harrisson[1] and those obtained on one sample by the writer are included.

TABLE IV.

ANALYSES OF CHLOROFORM LINIMENT.

Observer.	Sp. gr. 25/25° C.	Rotation (angular degrees).	Solids.
	1.0600	+1.56	4.22
N. T. C.	1.0570	+1.38	4.03
	1.0620	+1.87	4.45
S. S.	1.0600	+1.23	4.16
J. W. E. H.	.....	+1.3	3.73
L. E. W.	1.0557	+1.41	4.25
P. D. & Co.	1.060	+1.57	3.43

CONCLUSIONS.

From a comparison of all of the information obtainable it would appear reasonable to conclude that chloroform liniment of good quality should have the following properties:

Color—pale yellow
Odor—like chloroform, camphor and faintly of oil of rosemary
Specific gravity at 25/25° C.—1.050 to 1.060
Optical rotation { direct reading / angular degree } — + 1.14 to +1.6
Solids (residue at 110°)—3.90 to 4.50 Gm. per 100 cc.
Alcohol—43% to 45% by volume
Chloroform—no standard suggested

No standards are suggested for the limits of chloroform in chloroform liniment because the methods for its determination are not sufficiently elaborated and standardized. According to Moraw[2] it would appear that both heat and pressure are necessary to convert chloroform into chloride quantitatively. The directions and specimens for collaborative work upon the results of which this paper is based were sent out before Moraw's report was made public and most of the work had been completed. Consequently there has been no opportunity to employ a method for the determination of chloroform in the liniment involving the use of a pressure bottle.

The writer wishes to acknowledge his appreciation to the several pharmaceutical manufacturers and to others who have aided in this study, either by contributing material or by collaborative work.

[1] J. W. E. Harrisson, "Rate of Volatility of Chloroform from Chloroform Liniment," JOUR. A. PH. A., 12, 333 (1923).

[2] Moraw, "Report on Chloroform and Carbon Tetrachloride," *Jour. A. O. A. C.*, 10, 351 (1927).

THE EPHEDRINE ASSAY OF CHINESE EPHEDRA.*

BY C. T. FENG AND B. E. READ.

As set forth in a recent note we have shown that Chinese Ma Huang is obtained from various species of Ephedra, *E. equisetina*, Bunge; *E. sinica*, Stapf; and *E. mahuang*, Liu. So far there has been no differentiation made between the various samples of this drug which occur upon the Chinese market. However, irrespective of the possible variation in the drug samples we consider it is essential that there be made a critical statement of the methods of assay and the results as found and studied by us over a long period of time. It has been pointed out by Chou that ephedrine is a stronger base than ammonia, turning it out from its salts; hence it is a matter for critical study to show how suitable the U. S. P. belladonna assay method may be as used by various workers. The chemical laboratory of the American Medical Association has stated that when ephedrine is shaken out with ammonia and chloroform there is a reaction so that the hydrochloride is obtained instead of the free alkaloid.

In examining methods for separating ephedrine and pseudo-ephedrine hydrochloride we showed clearly that the use of ammonia to liberate the alkaloidal bases was open to question. Ammonia, when added to the extraction in limited amount sufficient only to make the fluids quite alkaline to litmus, did not produce the pure alkaloid. We have now studied the effects of the addition of molecular equivalents of strong ammonia and find that when the ammonia is present in very large excess the alkaloids are set free.

Hot and cold methods of extraction were made, also direct alkalinization of the powdered drug with potassium carbonate or soda ash, and adsorption by fuller's earth, which confirmed in a general way the high figures obtainable by these various methods.

ASSAY METHODS USED.

Method I. Hot Extraction with Acetic Acid.—One hundred Gm. of Chinese Ma Huang were prepared in No. 15 powder and macerated with 150 cc. boiling 3 *N* acetic acid, and stood one whole night. It was then successively treated for four nights with 200-cc. portions of alcohol 95%, containing 0, 12.5, 5 and 2.5 cc. of glacial acetic acid, respectively. The marc was evaporated to a thick syrup. The syrup was extracted with 200-cc. water and filtered. The clear water extract was made alkaline with ammonia and then treated with 20 Gm. of soda ash and shaken out with four portions of chloroform, 75, 50, 25 and 25 cc. The chloroformic extracts were evaporated to dryness and titrated against 0.1 *N* hydrochloric acid. There were used 58 cc. of 0.1 *N* HCl, which are equivalent to 0.959% of pure ephedrine alkaloid.

The titrated solution was evaporated to dryness, redissolved in water, made up to a standard volume and quantitatively tested by, (*a*) the Biuret color method, (*b*) Physiological test, (see later paragraph). The Biuret assay yielded a color the equivalent of 0.563% pure ephedrine, the remainder of the alkaloid was assumed to be pseudo-ephedrine. When this work was first done the refined

* From the Department of Pharmacology, Peking Union Medical College, Peking, China.
Received for publication August 31, 1927.

methods for assaying mixtures of the two alkaloids had not been developed. Reference to these methods will show that so long as ephedrine is present to 66% or more of the mixture there is no change in the results deduced.

This same method repeated with more finely powdered samples of Ma Huang yielded slightly greater amounts, and the ephedrine was proportionately greater in the final extract of the mixed bases. The dried chloroform residues required 60.1 cc. of 0.1 *N* hydrochloric acid, which is equivalent to 0.993% of bases estimated as pure ephedrine. The Biuret assay showed 0.614% of ephedrine.

In order to check these figures repeated observations have been made of the actual yields of pure ephedrine hydrochloride from the end-titration mixtures. Ten average samples yielded 0.135 Gm. pure crystalline ephedrine hydrochloride for every ten cc. of the 0.1 *N* hydrochloric acid used. The theoretical equivalent is 0.2016. Hence we are able to obtain about 66% of the total alkaloidal residues as pure ephedrine hydrochloride. Without further treatment with strong acids, which cause the formation of isomers we are able to obtain by chloroform solution and recrystallization from the mother liquors about 11% pure pseudo-ephedrine hydrochloride.

Method II. Hot Extraction with Hydrochloric Acid.—One hundred Gm. of dried Ma Huang powder were mixed with 100 cc. of water and 50 cc. 8 *N* hydrochloric acid, thoroughly mixed and macerated 5 hours.

There were added 350 cc. of alcohol 95%, the whole was mixed, raised to boiling temperature, and macerated over night on a warm radiator. It was filtered hot the following day. There were, further, two like additions of alcohol, the whole thoroughly mixed, boiled, macerated 2 to 6 hours, and filtered hot. The marc was finally rinsed with 5 successive portions of 100 cc. alcohol, and the whole well pressed each time. The combined extracts were evaporated, *in vacuo*, to dryness.

The dry residue was extracted with boiling water, 75-, 50- and 50-cc. portions, respectively, and then rinsed and pressed five times with 10 cc. of water.

To the watery extract was added 75 Gm. potassium carbonate and chloroform extraction was made with 100-, 75-, 50- and 25-cc. portions. The chloroformic extract was filtered and heated to dryness at low temperature. The residue was titrated with 0.1 *N* hydrochloric acid. There were used 82.98 cc., which is the equivalent of 1.37% of alkaloid in terms of pure ephedrine base.

The titrated solution was reëxtracted with chloroform and retitrated, requiring 80.03 cc. of 0.1 *N* hydrochloric acid, which is equivalent to 1.32%.

Method III. Direct Alkalinization.—Seeing that such an unusually large yield was obtained by this last method, we took the same sample of the crude drug and applied the direct alkalinization method which has been found to give good yields.

One hundred Gm. of the powdered crude drug were thoroughly mixed with 100 cc. of water and 50 Gm. of potassium carbonate, and stood for 5 hours. It was then shaken out with four successive portions of chloroform of 500 cc. each to which was added 20, 10, 5 and 0 parts of concentrated ammonia. The chloroform extracts were evaporated down to 20 cc. and 4 cc. of ether were added to form a solution lighter than water. Acid extraction was now made with successive portions of 0.5 *N* hydrochloric acid and water making a total volume of the acid

extracts and rinsings of 150 cc. which were washed three times with 5 cc. of a mixture of 1 part ether and 2 parts chloroform.

To the acid extract was added 50 Gm. potassium carbonate. It was shaken out with 75-, 50-, 50- and 25-cc. portions of chloroform. The chloroform solution was filtered and air dried. The residue was softened with 2 cc. of neutral absolute alcohol, and titrated with 0.1 *N* hydrochloric acid, and required 67.8 cc., which is equivalent to 1.12% of alkaloids calculated as pure ephedrine.

When further extracted with potash and chloroform and retitrated with acid the percentage of alkaloid present was 1.00%. These results were well checked by further estimations using the same and slightly varied procedures.

Method IV. Extraction with Cold Acids.—It was found that decoctions of Ma Huang made by boiling different samples of the drug in distilled water, were always faintly acid to litmus. This fact and the success obtained with cold alkaline extraction made us carefully examine our original acid extractions with large bulks of material, and it is quite plain that simple extraction with cold acids do not get out all the alkaloid, as shown in the following experiment. Portions of four Kg. were macerated over night with 4 liters of water and 2 liters of 8 *N* acetic or sulphuric acid. To the former was then added 16 liters of alcohol 95%, and to the latter 16 liters of water. They were macerated 1 night, and then drained. The marc was again treated with 16 liters of solvent and 1 liter of their respective acids, macerated 5 hours, drained and well pressed. The acetic acid extracts were treated with sodium carbonate to reduce the acidity almost to neutrality point and then evaporated to 2 liters each and after adding 100 cc. 8 *N* acetic acid they were filtered. To the filtrates were added 350 Gm. of sodium carbonate so that they were strongly alkaline. The precipitated alkaloid was filtered off and was taken up in chloroform, three lots of 300 cc., carefully filtered and evaporated, and added to the chloroform extractions of the mother liquors. In all 2100 cc. of chloroform were used. The dried chloroform residue was titrated with 73.1 cc. of 1 *N* hydrochloric acid, which is equivalent to *0.302%* of alkaloid.

The sulphuric acid extract was not evaporated down like the acetic acid one, on account of its tendency to change the ephedrine. The final bulk of 32 liters made alkaline with 2 kilos of sodium carbonate were shaken out in a similar way to the acetic acid method, and yielded a basic residue equivalent to 0.283% as calculated from the acid titration.

Method V.—Repeating Method I, we prepared from the acid alcohol extracts a water extract, and then used fuller's earth as an adsorption agent. Twenty Gm. of fuller's earth (Lloyd's reagent) were added and after shaking it well was filtered and washed with distilled water. The fuller's earth was then treated with 20 cc. saturated potassium carbonate solution and the whole shaken out with four successive portions of 40 cc. of chloroform. The chloroform was evaporated to dryness and the residue titrated with 0.1 *N* hydrochloric acid.

The titrated solution was further tested as in Method I.

It yielded 0.941% and 0.961% of total alkaloid. Tested by the Biuret method there was present in both samples 0.512% pure ephedrine base.

Method VI. Physiological Assay.—While it has been repeatedly shown in these laboratories that large repeated doses of ephedrine do not show like effects upon the blood pressure, little has been done to establish a method for biological assay.

It should also be emphasized that therapeutic doses repeated at intervals of a few minutes are likely to give negative results and embarrass the heart. Contraction of the turbinates, and relief of bronchial spasm in asthma, show negative results from quickly repeated doses of the drug. This prolonged action of the drug has made it so superior to adrenalin for certain conditions, but in considering the biological assay of ephedrine by its effect on the blood pressure, it is this very difference which has to be carefully allowed for. In the earlier publications upon ephedrine relatively large doses were used to demonstrate its blood pressor effect. We have found after a very large number of trials that a much smaller dosage can be used to show an appreciable rise in blood pressure. Small doses if repeated at sufficiently long intervals show a like effect accurate enough for assay purposes, as demonstrated in the following experiment conducted on a dog weighing 6.2 kilos. This experiment was carried out to demonstrate the possibilities of physiological assay and to confirm the results obtained by chemical assay. The animal was luminalized and arranged for an ordinary blood pressure tracing with a canula and burette attached to the femoral vein so that there was no reflex stimulation of the blood pressure from subsequent manipulation of the vessels. A standard solution of pure ephedrine hydrochloride was made, 1 cc. of which represented 1 mg. of the drug. The solutions obtained from the chemical assay of Ma Huang were similarly diluted so that 1 cc. contained 1 mg. of the theoretical alkaloids present.

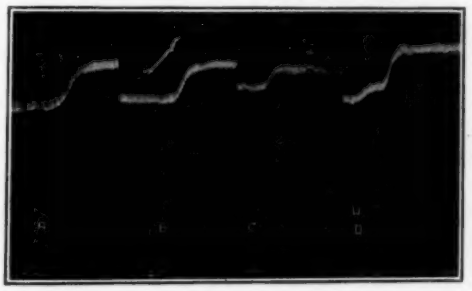


Fig. 1.—Blood pressure raising effects of ephedrine and Ma Huang extracts.

A. Physiological assay of theoretical content of one mg. alkaloid.

B. Effect of one mg. pure ephedrine hydrochloride.

C. Effect of half the amount of unknown.

D. Double the amount of unknown.

The small dose of 1 mg. was introduced into the femoral vein, it being flushed in with 1.5 cc. of saline. The figure (Fig. 1) shows the marked effect of the unknown A, and the like effect one hour later of an equal amount of the pure standard B. These injections were repeated at hourly intervals with an exactly similar result, after which as shown at C and D of the effect of half and double the amount of the unknown, respectively, was produced, also at hourly intervals.

Method VII. Ammonia Chloroform Assay.—The very poor assay results and the erroneous melting points reported by some workers led us to make a special study of this method.

A strong aqueous solution of ephedrine hydrochloride was taken and shaken out with two portions of 100-cc. chloroform after the whole had been treated with strong ammonia in sufficient quantity to make the solutions strongly alkaline to litmus. Separation was made in exactly the same way as usual except there was no filtration of the chloroform and separation was made one minute after shaking. Starting with about 15 Gm. of the salt, the two chloroform shakings when evaporated yielded 2.2 and 0.5 Gm. These residues were washed with ether and dried. They gave melting points of 210–212° and 212–214° C. (uncorrected). The remain-

der of the salt left in the aqueous portion, over 12 Gm., was dried, and melted at 210–212°.

This was repeated with a 20-Gm. mixture of 16 Gm. of ephedrine hydrochloride and 4 Gm. of pseudo-ephedrine hydrochloride, dissolved in 100 cc. of water. But there was used an excess of strong ammonia 100 cc. NH_4OH (15 *N*) more than equal to its equivalent weight for replacement of the total amount of the alkaloid. The whole was shaken out with two portions of 100 cc. of chloroform.

Weight of alkaloid obtained from first batch of $CHCl_3$	15.1 Gm.
Weight of alkaloid obtained from second batch of $CHCl_3$	1.3 Gm.
Total	16.4 Gm.

16.4 Gm. of the alkaloids is equivalent to 20.02 Gm. of the hydrochloride salts.

The combined residues were titrated with 1 *N* hydrochloric acid, and 99.0 cc. were used. This is equivalent to 16.34 Gm. alkaloids, or 19.95 Gm. of the salts originally used. The titrated fluid was evaporated to dryness, washed with ether, dried and found to weigh just under 20 Gm.

The assumption that the two isomers undergo no change throughout these processes was checked by taking the final weighed residues and washing thoroughly with 300-cc. chloroform. Pseudo-ephedrine hydrochloride is known to be soluble in chloroform while the ephedrine salt is only very slightly so, 0.0253%. There were dissolved by the chloroform 4.1 Gm. of the salts, presumably the pseudo-ephedrine portion, 15.8 Gm. were left undissolved.

DISCUSSION.

These results confirm the high results obtained by Schoetzow and Needham and others and emphasize the need for hot extraction, and the use of strong bases like soda and potash for liberating the alkaloids.

The results with ammonia explain much that has been obscure about the small yields of some workers and the melting points of the alkaloids so obtained. Table I shows the results of many assays.

There is room for considerable work upon methods of extraction of the alkaloids. Hot acid extraction we have known to produce a change in the proportions of the isomers, though not of the total alkaloidal content.

TABLE OF RESULTS OF VARIOUS EPHEDRA ASSAYS.

Chen.	Chow.	Neilsen, *et al.*	Schoetzow and Needham.	Masucci and Suto.	Read and Feng.	
0.018	0.26	0.2	0.403	0.305	I	0.976
0.091		0.9	0.632	0.515	II	1.32
			0.863		III	1.12
					IV	0.292
					V	0.95

SUMMARY.

1. Various methods of assay for ephedra have been tried out, showing that when fully extracted the total yield of alkaloids may exceed 1 per cent.

2. The ammonia chloroform method has been critically studied and it is shown that a large excess of ammonia is necessary for complete liberation of the alkaloids.

3. A demonstration of physiological assay suggests another method for confirming the chemical methods used.

REFERENCES.

K. K. Chen, JOUR. A. PH. A., 14, 189 (1925).
T. Q. Chou, *J. Biol. Chem.*, 70, 109 (1926).
C. T. Feng, *Chinese J. Physiology*, 1, 297 (1927).
Masucci and Suto, JOUR. A. PH. A., 15, 748 (1926).
C. Neilsen, *et al.*, JOUR. A. PH. A., 16, 288 (1927).
"N. N. R.," *Jour. A. M. A.*, 88, 482 (1927).
B. E. Read, *Pharm. J.*, 118, 184 (1927).
R. E. Schoetzow and G. H. Needham, JOUR. A. PH. A., 15, 1070 (1926).

THE QUANTITY OF ALKALOID IN HYOSCYAMUS AND A NEW METHOD FOR ITS EVALUATION.

BY H. R. WATKINS AND S. PALKIN.

In a recent paper on automatic devices for extracting powdered materials, striking results are shown with hyoscyamus.[1] Further work has shown that in some cases the new method gives yields of alkaloid in this drug more than three times as great as those obtained by Pharmacopœial (IX and X) procedures. The data on samples of hyoscyamus in Table I illustrate this point.

TABLE I.

TOTAL ALKALOID IN HYOSCYAMUS BY U. S. P. AND AUTOMATIC EXTRACTOR METHODS.

Sample.	Total alkaloid. U. S. P. method. Per cent.	Total alkaloid. Automatic extractor method. Per cent.	Sample.	Total alkaloid. U. S. P. method. Per cent.	Total alkaloid. Automatic extractor method. Per cent.
H-N	0.026	0.118	4A	0.104	0.200
	0.023	0.123		0.102	0.202
		0.121	5A	0.059	0.230
		0.124		0.056	0.234
C-9031	0.042[a]	0.172	6A	0.068	0.198
	0.038	0.177		0.084[a]	
P-11216	0.099[a]	0.164	7A	0.061	0.191
	0.103	0.164		0.052	0.191
1A	0.056	0.177	8A	0.175	0.315
	0.064	0.181		0.142	0.321
2A	0.069	0.215	9A	0.055	0.177
		0.210		0.050	0.181
3A	0.123	0.200			
	0.122	0.200			

[a] Assays by U. S. P. X Method; all other assays in this column by U. S. P. IX Method, prior to January 1, 1926.

---

[1] Palkin and Watkins, *Ind. Eng. Chem.*, 19, 535 (1927).

Although the results in Table I are not to be ascribed entirely to the use of the extracting device, but are in a measure due to the manner of treatment of the powdered material preparatory to extraction, as is shown by experiments to be described later, the fact remains that Pharmacopœial methods of evaluation of total alkaloids in hyoscyamus are seriously defective in that only a fraction of the alkaloid present is extracted and determined.

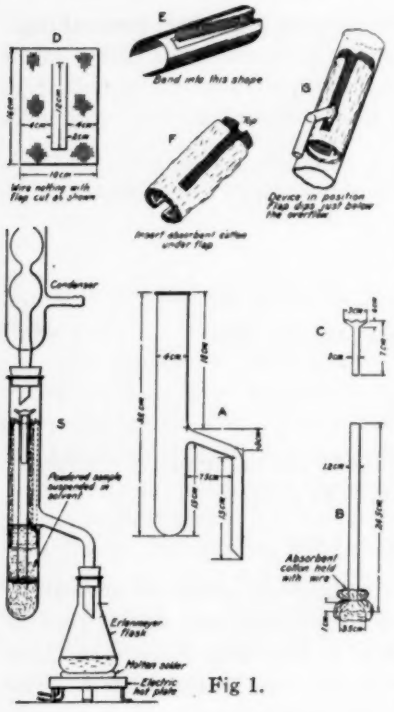


Fig 1.

The essential steps in the new procedure are as follows: (1) Treatment of the mass of crude drug with an alkaline medium to liberate the alkaloid; (2) continuous extraction by means of the device described,[1] using mainly ether as an extracting solvent; (3) purification process of the alkaloidal residue, in which chlorophyl, tarry and other plant extractives are removed by precipitation in acid solution; (4) extraction of the alkaloid from aqueous medium, using another automatic device,[1] and (5) titration of the alkaloid obtained.

All treatments, purifications, extractions, etc., are carried out in such a manner as to insure the stability of the hyoscyamine, as described in a previous publication.[2]

The steps in this experimental study were in a general way taken up in the reverse order of the process described under "Method," to make certain that while the effect of varying conditions in any one step was being studied no errors or additional variables were being introduced into subsequent steps. Although some 12 samples of hyoscyamus have been examined and reported on in Table I, the experimental study was in the main carried out on one sample (C 9031), a large quantity of which was available.

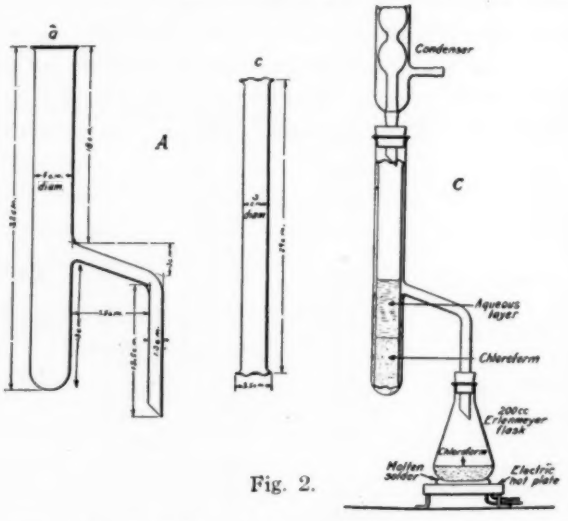


Fig. 2.

Steps 4 and 5.—The extraction of alkaloids from aqueous medium and their titration were carried out as previously described in a paper on automatic extraction

[1] Palkin, Murray and Watkins, *Ind. Eng. Chem.*, 17, 612 (1925).

[2] Palkin and Watkins, JOUR. A. PH. A., 16, 21 (1927).

devices for liquid preparations,[1] due precaution being observed in the extraction and titration to insure the stability of the hyoscyamine.[2]

Step 3: Purification of the Alkaloidal Residue.—The ethereal extract obtained in the continuous extraction of the crude drug contains, in addition to the alkaloid, a large quantity of chlorophyl and tarry-like plant extractives. It does not lend itself to purification by immiscible solvents in the usual way because of difficult emulsions. It was found that the bulk of the impurities could be thrown out in a finely divided state from the acid solution by a procedure similar to that used in the dealcoholization and purification treatment for nux vomica and belladonna fluidextract described in another publication.[3] Certain modifications are necessary here to insure complete removal of alkaloidal salt by repeated treatments with acid. Since the complete removal of the alkaloidal salt from the tarry residue involves repeated treatments of this residue in chloroformic solution with acid and repeated removals of the solvent to precipitate this tarry residue in a finely divided state, the question arose as to the optimum acidity for such a procedure. To reduce the conditions of experiment to the one variable, the combined ethereal extract from several charges was diluted to 500 cc. and 50-cc. aliquots were subjected to this purification treatment, using varying concentrations of acid. The extraction and titration of alkaloid were carried out uniformly, as given in Steps 4 and 5, under "Method." The results (Table II) show virtually no variation over an acid range from 20th normal to normal.

TABLE II.

EFFECT OF "ACID PURIFICATION" TREATMENT ON YIELD OF ALKALOID.

Variable—Acid concentration.

Acid used. (10 cc.).	Yield of alkaloid. Mg.	Per cent.
0.05*N*	12.96	0.154[a]
	14.70	0.175
0.1*N*	14.12	0.168
	14.70	0.175
0.2*N*	14.12	0.168
	14.12	0.168
N	14.12	0.168
	14.70	0.175

TABLE III.

EFFECT OF AMMONIA CONCENTRATION ON YIELD OF ALKALOID.

Ammonia. Quantity, cc.	Normality.	Alkaloid. Mg.	Per cent.
5	5	19.09	0.159
		16.49	0.138
4	16	20.54	0.171
		21.12	0.176
7	16	20.54	0.171
		20.54	0.171
9	16	20.54	0.171
		21.12	0.171

[a] Error, probably due to partial hydrolysis.

Steps 1 and 2: Treatment of the Crude Drug for Liberation of the Alkaloid Preparatory to Extraction.—The ratios of aqueous ammonia, alcohol and ether determined by a few preliminary experiments were adopted because they yielded a homogeneous medium and did not produce two layers when diluted with more ether during the extraction process. It then became necessary to determine the optimum ammonia concentration for the liberation of the alkaloid, bearing in mind the fact that straight aqueous ammonia for the maceration (without admixture of alcohol) is not feasible because of the instability of hyoscyamine under those conditions.

[1] Watkins and Palkin, JOUR. A. PH. A., 14, 1099 (1925).

[2] Palkins and Watkins, *Ibid.*, 16, 21 (1927).

[3] Palkin and Watkins, *Ibid.*, 13, 694 (1924).

It was not inconceivable that a too low ammonia concentration would be ineffective in liberating the alkaloid, and that a very high concentration of ammonia might be destructive of alkaloid.

In this series of experiments the alcohol-water (from ammonia-water) ratio was kept constant while the ammonia concentration was varied and all other conditions, such as maceration period, extraction, purification and determination, were carried out uniformly. An increased alkaloid yield is evident when the ammonia concentration is raised from 5 cc. 5 *N* (equivalent to 25 cc. *N*) to 4 cc. 16 *N* (equivalent to 64 cc. *N*) and practically no difference is observed when the concentration is further increased (Table III). All the titrated alkaloidal solutions were found to be of full hyoscyamine mydriatic strength when tested by the cat-eye method.[1]

Maceration Period.—Preliminary experiments had shown a variation in the yield of alkaloid, with variation in time of soaking of the crude drug with the ammoniacal medium. The alkaloid yield varies markedly with periods of from 10 minutes to 16 hours, slightly from 16 hours to 48 hours and virtually not at all for longer periods (Table IV).

TABLE IV.

EFFECT OF PERIOD OF CONTACT WITH AMMONIACAL MEDIUM ON YIELD OF ALKALOID.

Period of maceration. Hours.	Yield of alkaloid. Mg.	Per cent.
1/6	15.27	0.127
	15.27	0.127
2	15.85	0.132
	15.27	0.127
16	19.32	0.161
	19.32	0.161
48	21.70	0.180
	21.40	0.178
	21.40	0.178
	21.12	0.176
120	21.12	0.178
	21.12	0.178

TABLE V.

EFFECT OF MACERATION AT ELEVATED TEMPERATURE ON YIELD OF ALKALOID.

Variable { Composition of macerating medium. Temperature.

Macerating medium. Ammonium hydroxide. Cc.	Alcohol. Cc.	Ether. Cc.	Yield of alkaloid. Mg.	Per cent.
5	10	20	18.80	0.157
..	..	..	13.60	0.113
..	..	..	13.60	0.113
5	70	..	16.49	0.138
10	65	..	17.07	0.142
15	60	..	17.07	0.142

In view of the marked effect of time of maceration, it is thought possible that soaking at a somewhat elevated temperature might have an accelerating effect on alkaloid liberation. In view of the wide difference in boiling point of the constituents of the maceration medium, the series of experiments on maceration temperature variation was not entirely satisfactory.

Maceration at Elevated Temperature.—The charges of hyoscyamus in the extractor jackets were given the ammoniacal soaking medium, the whole apparatus was connected to the condenser as for automatic extraction, and the lower end of the jacket containing the charge was immersed in hot water and allowed to reflux for one-half hour, thus keeping the composition of the soaking liquid approximately uniform during the heating process.

Different ratios of alcohol, aqueous ammonia and ether were used as soaking media, thus permitting different heating temperatures. All were heated for the

[1] Report on Bio-Assay of Drugs, *J. Assocn. Official Agri. Chem.*, 10, 3, 383 (1927).

same length of time, however, and all subsequent operations to the point of alkaloid titration were carried out as described under "Method." In no case was the alkaloid yield equal to that obtained where "cold soaking" was applied over an extended period, and the process of liberation of alkaloid from the crude drug could evidently not be hastened by elevation of temperature during maceration (Table V).

If the alkaloid yield depended entirely upon the efficacy of the process entailing the alkaloid-liberation treatment of the crude drug and the manner of extraction were not significant, then simple digestion of the hyoscyamus with aqueous acid or acid alcohol solutions, filtration, washing, etc., and subsequent extraction of the alkaloid from the filtrate should yield a full return of the alkaloid.

To test this hypothesis, charges of hyoscyamus were digested on the steam-bath with varying concentrations of aqueous acid and alcoholic acid solutions for varying periods, filtered by suction, washed, etc., and the filtrate was subjected to purification before alkaloidal extraction as in the other experiments. Although apparently slightly more alkaloid was obtained in some instances, the increased quantities of plant extractives, particularly tarry material, rendered the purification process difficult, and the ultimate alkaloidal residue sufficiently contaminated to make the titration values doubtful.

There was some evidence that the crude drug has been exhausted by the method (Table IV), but further evidence obtained by repeated extraction of the marc and by the use of weak alcoholic hydrochloric acid solutions as the extracting medium in conjunction with the automatic device showed that only very small additional quantities of alkaloid were obtained by repeated treatment of the marc.

As digestion of the crude drug with hot alcoholic solution of hydrochloric acid without the aid of the automatic extracting device gave an appreciably lower alkaloid yield than the method here described, further experiments in which the extraction with alcoholic hydrochloric acid was made, using the automatic extractor, were conducted.

These experiments appeared to give an appreciably higher yield of alkaloid on prolonged extraction of about four hours (up to approximately 0.2 per cent). Here, too, however, larger quantities of tarry impurities were extracted, rendering the purification process difficult and titration so doubtful as to make a reëxtraction of the titrated solutions necessary. The final results were about the same as, or slightly lower, than those obtained by the ammoniacal alcohol-ether method.

In view of the materially higher yield of total alkaloid in hyoscyamus by the new method, it would appear desirable that the U. S. P. Revision Committee consider a new standard for this drug in the coming revision.

METHOD.

Treatment of Crude Drug.—Place 15 Gm. of the drug (No. 60 powder) in a Type S[1] extractor and pour enough ether through the center tube to moisten the drug. Add a mixture of 5 cc. of stronger ammonia water (26 per cent), 10 cc. of alcohol and 20 cc. of ether. Stir with a glass rod, so that the ammoniacal liquid is intimately mixed with the drug, washing the rod with a little ether. Stopper the apparatus securely and allow the drug mixture to macerate over night.

Extraction Process (Solid).—Stir the drug again with the glass rod and wash

[1] See Figure 1.

the rod with a little ether. Insert the filtering gauze and place the funnel in the upper end of the center delivery tube. Pour ether into the funnel in the tube until the liquid flows over into the Erlenmeyer flask to the extent of about 75 cc. Connect the extractor with a long reflux condenser, allowing the Erlenmeyer flask to rest on a steam-bath. Boil briskly for 2 hours. (If any channeling in the powdered mass is observed during the extraction, the extractor should be removed and the mass again stirred with the glass rod to break up the channels.)

Purification Treatment.—Remove the extractor and drain the solvent remaining in the jacket into the Erlenmeyer flask. Evaporate the ether extract to about one-third its volume, using a current of air. Add 10 cc. of 0.05 *N* sulphuric acid and 5 cc. of water and evaporate until the odor of ether is entirely gone. (The aqueous liquid remaining must be acid but not excessively so.) Pour the acidified liquid into a 50-cc. volumetric flask. Take up the resinous material remaining in the Erlenmeyer flask with a few cc. of chloroform and add 5–10 cc. of water and 3 drops of 0.05 *N* sulphuric acid. Heat this material on the steam-bath to expel the chloroform. Pour the acidified liquid into the 50-cc. volumetric flask, cool to room temperature, and make up to the mark with water. Mix thoroughly and filter through a 9-cm. filter paper, rejecting the first few cc. of the filtrate. Use for extraction.

Extraction (Liquid Extractor).—Place an aliquot of 40 cc. of the filtrate in a Type C[1] extractor, make alkaline with ammonia and extract with chloroform until the solution is exhausted of alkaloid (2 hours is more than sufficient).

Titration.—Evaporate the chloroform on the steam-bath to about 5 cc. Add a measured excessive volume of 0.02 *N* sulphuric acid and continue the evaporation until the odor of chloroform has disappeared. Cool the solution and titrate back with *N* 0.02 sodium hydroxide, using 1 drop of methyl red test solution as indicator.

Each cc. of *N* 0.02 sulphuric acid used is equivalent to 0.005786 Gm. of the alkaloids of belladonna.

SUMMARY.

Evaluation of total alkaloid in hyoscyamus niger by a new process of treatment and automatic extraction shows that in general the alkaloid content of this drug as determined by U. S. P. methods has been under-estimated.

A new method is described for the determination of total alkaloids in hyoscyamus which yields from two to three times as much alkaloid as that obtained by the U. S. P. IX and X methods. Physiologic tests show that all of the alkaloid so obtained is at least equivalent to hyoscyamine in mydriatic strength.

PREPARED REMEDIES FOR ANIMAL AND POULTRY DISEASES, ETC.

The United States Department of Agriculture has published recently a series of pamphlets on the above subject. They are referred to as "Poultry Short Courses," No. 5, No. 6, etc. These and other bulletins released by the United States Department of Agriculture devoted to the subject of diseases, ailments and abnormal conditions in poultry, swine and other domestic animals should be of interest to the manufacturer of animal remedies. In this connection the attention of manufacturers of these preparations is called to the foreign export market for veterinarian medicines, sheep and cattle dips, remedies for domestic pets, anti-hog cholera serum, etc., notice of which appears in the Chemical Division's bulletins from time to time.

[1] See Figure 2.

THE BIOLOGICAL ASSAY OF ACONITE.

BY MANUEL G. JAUREGUI,* MADRID, SPAIN.

The use of aconite, at one time so largely employed as a therapeutic agent, has in recent years been almost abandoned. One reason for this is probably due to the opinion voiced by Sollman (1) that "Effective doses are practically toxic; safe doses are practically ineffective." In addition to this objection there is the further one, that the alkaloid aconitine is quite unstable in solution, and that preparations of aconite show very great variations in potency. As it is highly desirable that there be available a therapeutic agent whose main effect is vagus stimulation, further study of aconite is needed before it is wholly cast aside. The first step in this study is obviously the development of a method for assuring standard preparations of the drug.

Work in this direction began with the isolation of the pure principles from the root. The extraction of an alkaloid, aconitine, from *Aconitum napellus* was first announced by Brandes and by Peschier (2), and was afterwards confirmed by Pallas, in 1825 (3), and by Geiger and Hesse, in 1832 (4). It was not until 1866, however, that Groves (5) obtained the alkaloid in crystalline form and assigned to it an empirical chemical formula. Alder Wright, in a series of painstaking articles (6) studied this substance, gave it its present formula and brought about its decomposition into benzaconine and aconine. From the time of his work until recently a chemical method of determining the alkaloidal content of aconite has been employed. This method has been official in the United States Pharmacopœia up to, but not including, the present issue (1926).

There are, however, several factors which combine to make the chemical assay of aconite preparations of doubtful or even of negative value. Not the least of these is the rather rapid decomposition of aconitine, the most active alkaloid in aconite, into its hydrolytic products, benzaconine and aconine (Swanson and Walters (7)). Since aconitine is 200 times as toxic as benzaconine, and 1200–2000 or more times as toxic as aconine, it can easily happen that preparations of enormously varied strength may be claimed to have the same potency on the basis of chemical assay. Thus, commercial tinctures were found (Haskell *et al.*, 1915 (8)) to vary 1000% in potency while commercial solid extracts differ even more widely, some being 5000 times more active than others (A. R. L. Dohme, 1918 (9)).

Not only do these decomposition products form, but it is impossible to tell in what proportion they are present in any solution, since the chemical methods of assay determine only the amount of ether-soluble alkaloids present. The ether-soluble alkaloids are not all aconitine, therefore, but represent a mixture of the three alkaloids in varying proportions, and precipitation and solubility tests have failed (Dohme, 1922 (10)) to show any way of separating them chemically. Although Swanson and Walters in 1923 have shown that deterioration can largely be obviated by the addition of 2% acetic acid to the menstruum in making tinctures, the impossibility of chemically measuring alkaloids actually present renders the chemical method of assay useless.

Even before the attempt was made to standardize aconite by its alkaloidal content, Squibb (11), suggested a physiological method of standardization. This

* Christian A. Herter Research Scholar, New York University.

consisted in the holding of 4 cc. of a 1:600 dilution of a tincture of aconite in the mouth for one minute, and after ejection and rinsing the mouth, obtaining the characteristic tingling sensation in 15–30 minutes. Although the method is too crude to give accurate results, it is of historic interest as being one of the first attempts at the physiological standardization of a drug.

In more recent years a number of other methods of bio-assay have been proposed. Of these, the method of determining the minimum lethal dose for guinea-pigs has most evidence in its favor, and has been adopted as the official test in the 10th revision of the U. S. P. This method was first described by Githens and Vanderkleed in 1910 (12).

In 1913 Roth (13) subjected the various methods proposed to a critical analysis. He concluded that the Squibb method and the various frog methods (one-hour frog method, minimum lethal dose for frogs, perfused heart of the frog) were untrustworthy, as was also the method based on changes in the blood pressure of cats and dogs. He found that the guinea-pig method gave the most satisfactory results in his hands. It may be pointed out, however, that his cat and dog experiments were not carried out in a uniform manner. The vagi were cut in the middle of the experiments; there was no constant rate of flow of the drug; and besides unequal intervals of time between injections, different amounts of tincture were allowed to enter the jugular vein at each injection, rendering the comparison of end-points unreliable.

Dohme in 1922 (10) reported the findings of a committee on aconite standardization. He showed that chemical analysis was entirely useless in determining the strength of any preparation. On the other hand, he gives figures showing remarkable uniformity obtained by the guinea-pig method.

Swanson and Walters, 1923 (7) confirm the value of the guinea-pig method for the determination of aconitine toxicity and give comparative figures showing the reliability of the biological method. They applied the method in testing the toxicity of aconite preparations, an extract of the root, a fluidextract and a tincture and interpret their figures as showing the superiority of the bio-assay over the chemical assay. This conclusion is based on an average figure obtained from many tests. The extremes used in obtaining this average, however, show variations of 50 to 200% or more. They studied especially the question of deterioration. They found pronounced deterioration of both fluidextract and tincture as commonly prepared, when they were kept over a period of time. For example, the fluidextract gradually lost potency and became practically inert in 1–3 years. Aconitine crystals in 70% alcohol deteriorated to 1/10 of their potency in 1 year and to 1/100 in 3 years. When aconitine is kept in 2% acetic acid solution, the deterioration is reduced to less than one-half of this.

Haskell (1916) (14) on inconclusive data, using few animals, decided that the cat method described by Hatcher for digitalis standardization is worthy of a more extended trial, and that the guinea-pig method is unreliable since these animals are subject to marked seasonal variations in their response to aconite intoxication.

Swanson (1924) (15) in a later paper discusses again the guinea-pig method, and mentions certain disturbing factors which should be properly controlled. Thus he insists on a standard weight of pig, allowance for seasonal variations, acclimation

to laboratory surroundings and food, constant dilutions, equal amounts of fluid injected, etc.

Not all the reports on the guinea-pig test are favorable, however. Robinson (16) could not obtain any uniformity in his minimum lethal dose, even when using aconitine crystals. He found that some pigs survived relatively large doses (.000000075 to .0000001), while the same preparation killed other pigs in much smaller amounts (less than .00000005). The number of animals used in this work, however, was too small to invalidate the method. Even when Roth's favorable report is studied we find his figures running uniformly about twice as high as those cited in the Dohme report.

Rowe (17) has substituted the mouse for the guinea-pig from considerations of expense, and finds that his results are comparable with those obtained with pigs, if he uses an insusceptibility factor of 6.25, the mouse being relatively more resistant. His figures are not convincing.

Impressed by the Hatcher cat unit method for the standardization of digitalis preparations (18), a number of workers have applied the same technique for aconite.

Ford, Ford and Wine (19) determined the minimum lethal dose for cats (anæsthetic used not stated) injecting the aconite preparations intravenously and taking as an end-point stoppage of the heart. Although they concluded that this method compares favorably with the guinea-pig method, their figures show such wide variations that their conclusions seem unwarranted. Haskell (14), Haskell and Zircle (8), and Haskell and Thomas (20), because they found wide variations in their results with the guinea-pig method, due, they think, to seasonal variation, believe that the Hatcher method is worthy of a more extended trial.

From this brief review of the literature, it would seem that none of the methods suggested for aconite standardization is strictly dependable when used by different workers, and that further work on the subject would be useful. I have accordingly tested out the pharmacopœial guinea-pig method and in addition carried out a large number of experiments to determine the minimum lethal dose for cats and dogs by intravenous injection.

In all my experiments, aconitine itself was used, as it seemed useless to work with unknown and probably changing solutions before the method was proved accurate by means of a known substance. In fact, with any method the main point is to establish a standard. The aconitine used was supplied by Merck, and was labelled "Aconitine potent, crystals." The Pharmacopœia gives a melting point of 195° for aconitine crystals on rapid heating. On heating at a rate of 3° increase per minute I found the crystals melted at 185.3° to 185.8°. On more rapid heating the melting point was 196°. Roth quotes a melting point of 188°. It is possible that slight alterations in the structure of the aconitine molecule may account for these differences, without there being any appreciable difference in activity. For each day's experiment, a stock solution of 100 mg. aconitine in 100 cc. 2% acetic acid was prepared. Desired dilutions with normal saline were made from this stock solution.

I first repeated the pharmacopœial guinea-pig method. The guinea-pigs ranged in weight from 260 to 320 Gm. and the aconitine in dilution of 1–50,000 was carefully injected subcutaneously into the abdominal tissue by means of an

accurately graduated tuberculin syringe, using a fine needle. The experiments were done in the early Spring and a few in June. No differentiation of sex was made, nor in fact, any special selection of any kind. There was no preliminary fasting. In short, close attention was given only to the preparation of the solution and the accuracy of the injection.

The results were as follows:

Protocol 1.—Experiments on Guinea-Pigs. Subcutaneous Injection of Aconitine.

No. of g.-p.	Dose per Gm. wt.	Died.
3	0.000,000,05	1
3	0.000,000,055	0
9	0.000,000,06	5
3	0.000,000,065	3
5	0.000,000,07	5

The minimum lethal dose per Gm. weight of guinea-pig was therefore between .000,000,06 and .000,000,065. This agrees with the pharmacopœial standard. It may be pointed out here that death occurs usually within one hour and that the symptoms are chiefly those of respiratory failure. In other words, the toxicity of this drug is closely connected with its action on respiration and is no measure of therapeutic effectiveness. While I have made no examination of seasonal variations in the animals tested, which according to both Haskell and Swanson may influence the fatal dose, in general the method is extremely simple, and gave in my hands remarkably uniform figures.

Whether the minimum fatal dose figure for guinea-pigs can be applied generally to other species of animals is questionable. Rowe states that mice are much less susceptible. I have attempted to determine the minimum fatal dose for cats, giving the aconitine in 1–5000 dilution by subcutaneous injection with the following results:

Protocol 2.—Experiments on Cats. Subcutaneous Injection of Aconitine.

No. of cats.	Dose per Gm. wt.	Died.
2	0.000,000,06	1
8	0.000,000,07	3
3	0.000,000,075	3

According to these results the dose lies between .000,000,07 and .000,000,075 Gm. per Gm. wt. One dog was given an injection of .000,000,07 Gm. per Gm. wt. and died within half an hour. It would appear therefore that the toxic dose for both cats and dogs is very close to that for guinea-pigs.

The succeeding series of experiments were carried out with the idea of determining the feasibility of the method of intravenous injection recommended by Ford, Ford and Wine and others.

In the first series dogs were used. For anæsthesia, each animal was given 1/3 cc. of a 1% morphine sulphate solution subcutaneously, followed by 1/2 cc. of a 40% alcoholic solution of chloretone intra-abdominally, per Kg. weight. A blood pressure record was taken from the carotid artery, and a respiratory record obtained by means of a tambour system attached to the chest. Aconitine in 1 to 100,000 solution was injected from a warmed burette into the femoral vein at the rate of 1 cc. per minute. The weights of the animals ranged from

4.7 to 10.5 kilos. Stoppage of the heart was taken as the end-point. Protocol 3 gives the minimum lethal dose of aconitine per Gm. of animal weight.

Protocol 3.—Experiments on Dogs. Morphine and Chloretone Anæsthesia. Intravenous Injection of Aconitine.

Weight in kg.	Min. lethal dose in Gm. per Gm. weight.	Weight in kg.	Min. lethal dose in Gm. per Gm. weight.
4.7	0.000,000,039	6.3	0.000,000,062
9.75	0.000,000,046	6.27	0.000,000,063
6.65	0.000,000,046	6.0	0.000,000,093
10.5	0.000,000,056	7.9	0.000,000,094
7.8	0.000,000,057	5.75	0.000,000,108
8.1	0.000,000,060		

This table shows that of 11 dogs tested, five were killed by doses ranging between .000,000,056 and .000,000,065, which correspond to the subcutaneous lethal doses for guinea-pigs. Three of the dogs, however, were killed by doses considerably less than these, and three by ones much in excess. After death, the hearts of some of the animals were weighed, in order to see whether there was a definite relationship between heart weight and lethal dose. No such relationship was found. It is evident then that this method on dogs fails to give satisfactory results.

To determine a possible effect of the vagus in modifying the lethal dose, 5 more dogs were tested in the manner described above, with the exception that both vagi nerves were cut. The lethal doses in these animals ranged from .000,000,046 to .000,000,076 Gm. aconitine per Gm. weight of animal. Cutting of the vagus therefore, does not improve the accuracy of the method.

In the experiments on cats, the technic followed that described by Hatcher for digitalis standardization. Food was withheld for 24 hours preceding the experiment. The animals were anæsthetized by ether (drop method), and the aconitine solution in 1 to 100,000 dilution was injected into the femoral vein at the rate of 1 cc. per minute. Blood pressure and respiration records were taken as in the dogs. Protocol 4 gives the results of these experiments.

Protocol 4.—Experiments on Cats. Ether Anæsthesia, Drop Method. Intravenous Injection of Aconitine.

Weight in Kg.	Min. lethal dose in Gm. per Gm. weight.	Weight in Kg.	Min. lethal dose in Gm. per Gm. weight.
3.15	0.000,000,023	2.45	0.000,000,069
2.4	0.000,000,033	5.2	0.000,000,071
2.8	0.000,000,036	3.35	0.000,000,077
2.7	0.000,000,042	2.07	0.000,000,080
2.5	0.000,000,044	2.7	0.000,000,085
2.5	0.000,000,048	2.87	0.000,000,107
4.35	0.000,000,052	3.35	0.000,000,125
2.5	0.000,000,060		

As seen in this protocol, the figures for the lethal dose show even larger variations than in the set of dog experiments. In both sets no conclusions could be drawn as to a fairly fixed lethal dose, and the intravenous method, as commonly applied, may be dismissed as wholly unreliable.

If we look now for possible reasons for the divergence between the results by the guinea-pig and the intravenous methods, we notice that the latter method

involves the use of a new factor, namely, an anæsthetic. In the dog experiment this factor was controlled to a certain extent by using a definite dose of anæsthetic. In the cats, there was no way of correspondingly measuring the dose of the ether. Since aconite in toxic doses affects the respiration as much as, if not more than, it does the heart, and since the anæsthetics employed all have a depressant effect on the respiratory center, it is obvious that the use of anæsthetics whose effects cannot be accurately measured must be a serious objection to the method. The same difficulty is seen in the cat unit method for digitalis, although here it is less serious because digitalis, unlike aconitine, exercises its chief effect on the heart and not the respiratory center.

I have carried out one more series of experiments in an attempt to overcome the anæsthetic difficulty. These were on cats and the technic was changed in that ether was given by insufflation through a tube carried down to the bronchi, with an artificial respiration maintained. Death of the animal should be due, therefore, to direct action on the heart, the respiratory failure factor being eliminated. Protocol 5 gives the result of these experiments. Three experiments showing wide variations are omitted because of gross experimental errors.

Protocol 5.—Experiments on Cats. Artificial Respiration and Ether by Insufflation. Intravenous Injection of Aconitine.

Weight in Kg.	Min. lethal dose Gm. per Gm. weight.
3.0	0.000,000,053
3.9	0.000,000,053
3.2	0.000,000,056
3.32	0.000,000,060

Although these experiments are few in number, the figures show fairly close uniformity and seem to warrant the conclusion that the intravenous method is reliable provided the effect of the anæsthetic on the respiratory center is either accurately controlled or eliminated. It may be noted that the doses in the last experiment are slightly under those for guinea-pigs, but this is probably due to differences in the rate at which the drug enters the blood stream.

DISCUSSION.

In the experiments described, it is shown that the guinea-pig method satisfactorily establishes a standard for aconitine potency. The procedure is simple and requires no unusual precautions. It is possible that seasonal variations in animals might have to be considered, but it would be a simple matter to re-fix the lethal dose at any time. The lethal dose for cats and dogs, as far as my limited experiments show, agrees fairly well with that for guinea-pigs, where the same method is employed.

When a fatal dose of aconitine is given to any of these animals, the symptoms are largely respiratory, and death is due in part to respiratory failure. It has been stated (21) that in biological assay the activity of any substance tested should be measured by its effects on the organ on which its therapeutic action is desired. My experiments show as do those of Roth that the onset and degree of cardiac inhibitory action from vagus stimulation bear no quantitative relation to the amount of aconitine injected. There is then a distinction to be drawn between therapeutic

and toxic effect, and however desirable the standardization of a strictly therapeutic dose may be, in practice the end-point of the standard reaction is some definitely measureable toxic effect. It is a matter of no great importance in the case of aconitine what may be the actual cause of death. The point is to establish a definite standard of potency, and the therapeutic dose can be established later by careful observations at the bedside.

In the intravenous injection methods, it has been shown that the results are too diverse and the control of anæsthetic dosage too difficult to allow of practical application. A study of the respiratory and blood-pressure record in the cat and dog experiments show that the respiratory action has a definite relationship to the fatal dose. Where the record shows an early onset of respiratory weakness, death is produced by a smaller dose of aconitine. When the respiration is fairly well maintained, the dose is larger. The blood pressure after an early fall, with a stage of vagus slowing, rises above its original level in either instance, and falls rather suddenly to zero when the fatal dose is reached. Gasping respiration continues a short time after the heart has stopped. Since an inefficient respiration brings about a weakening of the heart, any circumstance which in itself tends to depress the function of the respiratory center would make this more susceptible to a drug depressant action and in addition make the weakened heart also more susceptible. Such a circumstance arises where anæsthetics are used, since these are all respiratory depressants. Only when the anæsthetic dose can be as carefully measured as is the dose of the drug being tested, can the intravenous method, involving anæsthesia of the animal, give trustworthy results. It appears possible, according to my experiments, to bring this about, but the procedure involves a technic too complicated for practical application.

CONCLUSIONS.

1. A study has been made of methods for determining the minimum lethal dose of aconitine as a standard for biological assay of aconite preparations.
2. The pharmacopœial guinea-pig method, if carefully performed, gives uniform results and offers no technical difficulties.
3. The lethal subcutaneous dose for cats and dogs agrees fairly closely with that for guinea-pigs.
4. Intravenous injections on anæsthetized animals give unreliable results, if the anæsthetic is given in the usual manner.
5. If the anæsthetic is given in fixed amounts proportionable to the size of the animal or if respiratory failure is prevented by artificial respiration, the intravenous method appears to be reliable.
6. Vagus showing of the heart cannot be taken as a measure of aconitine toxicity.

I take this opportunity of expressing my sincere appreciation of the encouragement and assistance given by Prof. George B. Wallace and Dr. Z. Albert Raskin in carrying out this research.

BIBLIOGRAPHY.

(1) T. Sollman, "A Manual of Pharmacology," Philadelphia, p. 547 (1926).

(2) Brandes, Peschier, quoted by "Pereira, Materia Medica and Therapeutics," Philadelphia, p. 1086 (1853).

(3) Pallas, *J. de Chim. Méd.*, 1, 192 (1825).

(4) Geiger and Hesse, *J. de Chim. Méd.*, 10, 464 (1832).

(5) Thomas B. Groves, *Pharm. J.*, Series II, 8, 118 (1866).
(6) Alder Wright, *Pharm. J.*, Series III, Vols. 5–8 (1875–78).
(7) Swanson and Walters, JOUR. A. PH. A., 12, 947 (1923).
(8) Haskell and Zircle, JOUR. A. PH. A., 87, 537 (1915).
(9) A. R. L. Dohme, *Proc. Amer. Drug. Manuf. Assoc.*, p. 200 (1918).
(10) A. R. L. Dohme, JOUR. A. PH. A., 10, 428 (1922).
(11) Edward H. Squibb, "An Ephemeris of Materia Medica," Brooklyn (1882).
(12) Githens & Vanderkleed, PROCEEDINGS A. PH. A., p. 913 (1910).
(13) G. B. Roth, JOUR. A. PH. A., 2, 705 (1913).
(14) C. C. Haskell, *Am. J. Pharm.*, 88, 243 (1916).
(15) E. E. Swanson, JOUR. A. PH. A., 13, 1108 (1924).
(16) G. C. Robinson, *Arch. Internal Med.*, 15, 645 (1915).
(17) L. W. Rowe, JOUR. A. PH. A., 14, 968 (1925).
(18) Hatcher and Brody, *Ibid.*, 82, 360 (1910).
(19) Ford, Ford and Wine, *Am. J. Pharm.*, 87, 489 (1915).
(20) Haskell and Thomas, *Ibid.*, 88, 3 (1916).
(21) H. C. Wood, JOUR. A. PH. A., 59, 1433 (1912).

DEPARTMENT OF PHARMACOLOGY,
UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE.

THE PERSISTENT RIDDLE OF BETTER DISTRIBUTION.

Dr. Julius Klein, Director of the Bureau of Foreign and Domestic Commerce of the U. S. Commerce Department, speaking to the American Association of Advertising Agencies, October 25th, pointed out how the science of distribution has failed to keep pace with improved manufacturing methods.

According to Dr. Klein we are at present trying all sorts of schemes, attempting to grope our way in this direction and that, without many clear principles to guide us.

Mail-order houses, which were supposed to derive much of their advantage from the fact that they had no salesmen or expensive retail establishments, are now finding it advantageous in many cases to establish retail display stores and many of them are employing the equivalent of traveling salesmen to place their catalogs in the hands of prospective customers.

Some chain stores which hitherto consistently adhered to the cash and carry system now find it advantageous to add a telephone and a delivery service. Department stores are taking on all kinds of service departments, including beauty parlors, golf schools, bus transportation, "baby checking" facilities and many other services.

We have retailers organizing coöperative wholesale buying associations, wholesalers organizing chains of retailers and manufacturers dealing directly with retailers or even undertaking house-to-house selling to consumers.

We have department stores organizing branches and retail stores consolidated under one management. And through it all we have hand-to-mouth buying, installment-selling and a host of similar movements.

Out of all this experience, we are, undoubtedly, developing information which will be of great service in the future but, in the meantime, we seem to be spending much money and exerting valuable energies in fruitless experiments. Experience may be a good teacher—at times—but the tuition fee is often prohibitive.

Perhaps one of the most fruitful fields for eliminating waste in distribution lies, ironically enough, in the curtailment of overlapping "efficiency research" efforts. To this end the Bureau publishes annually a catalog of "Market Research Agencies," which lists all important current market investigations and the organizations engaged in this field.

In shaping the strategy for the attack on all of these problems the trend of thousands of individual inquiries directed to the Bureau from all lines of business forms a valuable source of suggestion. Equally important also is the advice of numerous trade bodies and associations which collaborate constantly in these undertakings.

A STUDY ON SOME CALCIUM AND MAGNESIUM SALTS OF COMMERCE.

BY G. G. COLIN.*

Not very long ago, a large number of pharmacies in this city were fined heavily by the Health Department. Inspectors had found that the stock of Magnesium citrate was adulterated, that it contained large amounts of tartrate in some cases, and in others the substance was entirely tartrate instead of citrate. Further investigations disclosed that the adulteration, so-called, had been unintentional on the part of the pharmacists. They had acquired their supply from a European firm and, apparently, there was no special restriction about using one or the other salt in that country. However, the Mexican Pharmacopœia requires absolute freedom from tartrate in magnesium citrate and, therefore, the product was declared misbranded.

Later, other magnesium salts were found impure, the oxide and the carbonate, and calcium carbonate was also found to be unfit for medicinal use in some cases. The Health Department confiscated all of the material from the distributors.

An examination of our stock of magnesium citrate taken from an original, imported, sealed bottle, revealed the large amount of tartrate present. No quantitative estimation was made. A qualitative examination of some samples of our magnesium oxide and carbonate gave the following results:

TABLE I.

	Sample.	Amount.	Sol.	Effervesc.	Iron.	Sulph.	Chloride.	Phosph.
1.	Carbonate	2.00 Gm.	5 cc.	xxxxx	xx	—	—	—
2.	Carbonate	2.00 Gm.	5 cc.	xxxxx	x	—	—	—
3.	Carbonate	2.00 Gm.	5 cc.	xxxxx	x	x	—	—
4.	Oxide	2.00 Gm.	6 cc.	xx	x	xxx	x	—
5.	Oxide	2.00 Gm.	5 cc.	xx	x	x	x	—
6.	Oxide	2.00 Gm.	5 cc.	x (slight)	x	—	—	—
7.	Oxide	2.00 Gm.	5 cc.	—	xxx	xxx	xx	—

x denotes traces. All samples dissolved to a clear solution using conc. HCl; a yellowish tint was observed in all of them, when in solution.

The magnesium carbonate samples did not show any striking variation from average medicinal product. However, the oxides called our attention, especially Samples 4 and 5. According to the Mexican Pharmacopœia, an F. M. product must yield at least 41.5% MgO upon calcination according to the following, taking basic Magnesium carbonate:

$$\frac{5\ MgO}{4\ MgCO_3.Mg(OH)_2.5H_2O} = \frac{5 \times 40.32}{485.70} \times 100 = 41.50\%\ MgO$$

Samples Numbers 2, 3, 4, 5 and 6 were taken for calcination tests, to determine the fixed residue. The following results were obtained:

TABLE II.

	Sample.	Amount.	Residue.	% MgO.	Loss (CO_2, H_2O, etc.).
2.	Carbonate	1.00 Gm.	0.4244	42.44	57.56%
3.	Carbonate	1.00 Gm.	0.4300	43.00	57.00%
4.	Oxide	1.00 Gm.	0.9400	94.00	6.00%
5.	Oxide	1.00 Gm.	0.6160	61.60	38.40%
6.	Oxide	1.00 Gm.	0.5980	59.80	40.20%

* Central Chemical Laboratory of the Drogueria y Botica Central, Mexico.

Samples 2 and 3 gave approximately the correct amount of MgO to be expected of magnesium carbonate. Sample 4, an oxide, showed a slightly lower MgO content than that required, 96%. Samples 5 and 6 showed a peculiar behavior towards gentle heat. These two products were labelled "Heavy Calcined Hydrated Magnesia." Very copious effervescence was observed upon addition of acids, more than would be expected from the traces of carbonate allowed by the U. S. P. or the F. M. The determination of fixed residue in these two samples was rather troublesome. A low alcohol flame could not be allowed a very long contact with the crucible without causing a violent effervescence with loss of material. It was necessary to apply the low alcohol flame very cautiously for about 10–20 minutes until all the gas and moisture were driven out; then the calcination could be completed without trouble. Several other samples were tested to see if that low degree of heat would cause decomposition but, of course, neither the ordinary oxides or carbonates were affected at all by that amount of heat. Evidently this kind of material contains an excess of moisture and its fixed residue corresponds to approximately the amount of MgO yielded by $Mg(OH)_2$, about 60%.

The agents for the manufacturers of this product were called to give us some data regarding the composition of their product. They claimed that their product was a special one, a derivative of MgO containing water of hydration. The manufacturers submitted an analysis of their product claiming the following composition:

Hydrate of Magnesia ($Mg(OH)_2$)	96.97%
Magnesium Oxide (MgO)	66.67%
Basic Magnesium Carbonate	1.30%
Iron Oxide	0.02–0.08%

This product is not specified either in the F. M. or in the U. S. P. where we see Heavy and Light Magnesium Oxides and Magnesium Carbonate with 96% and 40% MgO respectively. Magnesium hydroxide is recognized in the pharmacopœias as magnesia magma or milk of magnesia, not as heavy or light $Mg(OH)_2$ powder.

The solubility tests confirmed the excess of carbonate (more than 1.30%), for both $Mg(OH)_2$ and MgO are rather insoluble products. The tests carried out as specified in the U. S. P. IX gave residues of about 0.18 Gm., checked volumetrically by titrating the alkalinity of the solution and calculating as $MgCO_3.3H_2O$. The maximum amount of soluble salts according to the U. S. P. IX is 0.01 Gm. for the carbonate, and 0.02 Gm. for the oxide, heavy or light, per Gm., and in this case we have almost ten times the maximum limit of soluble salts.

Both pharmacopœias allow a slight alkalinity in the hot water extract of the sample and a slight effervescence upon addition of acids. In this case we had a marked alkalinity and production of gas, indicating an appreciable amount of carbonate. It was not determined whether a sample of $Mg(OH)_2$ powder is capable of taking up from the air an excessive amount of CO_2 inside of a well-sealed tin can, such as the manufacturers use as containers for their product.

CALCIUM CARBONATE.

Calcium carbonate had also been found by the Health Authorities to be an impure product. This was true of certain European brands, for there is still pref-

erence for them in spite of the fact that American-made products are as good, and in many cases better than the European similars. A qualitative examination, using two Gm. samples of seven different brands, dissolved in HCl and HNO_3 plus 10 cc. distilled water, gave the following results:

TABLE III.

	Sample.	Solution.	SO_4.	P_2O_5.	Cl.	Fe.	H_2S.
1.	$CaCO_3$	Opales	x	xxxx	—	xx	—
2.	$CaCO_3$	Clear	xxx	xx	—	xxx	—
3.	$CaCO_3$	Clear	xxx	xxx	—	xx	—
4.	$CaCO_3$	Clear	xxx	xxx	—	xx	—
5.	$CaCO_3$	Clear	x	x	—	x	—
6.	$CaCO_3$	Clear	xxxx	x	—	xxxxx	xx
7.	$CaCO_3$	Clear	xx	xxx	—	xxxxx	—
8.	$CaCO_3$ (Pptd.)	Clear	x	—	—	x	—

Sample No. 1 was an impure product for industrial use and was used as a basis for comparison, and Sample 8 was pure precipitated calcium carbonate. The others were samples of so-called prepared chalk. All of them except No. I were taken from original packages purchased in the open market. One "x" denotes traces of the impurity sought. All the solutions in HCl, except the one from No. 8, had a slight yellowish tint indicating Fe, and gave strong reactions with potassium ferro and sulphocyanides. It will be noticed that some of the prepared chalk samples contained more Fe than the crude industrial product. The same will be noticed about sulphates. The crude salt and the precipitated sample contained considerably less SO_4 than any of the others. With exception of No. 8 nearly all the other samples contained almost as much phosphate as the crude calcium carbonate. And the worst of all: a very handsomely wrapped product labelled "Pure, for Medicinal Use" contained a very appreciable amount of sulphide as shown by the evolution of H_2S when dissolving the sample. In many cases the only difference between the crude product and some of the "pure" ones was the insoluble matter contained in the former; if this was filtered, the solution contained impurities in smaller amounts.

DISCUSSION.

A discussion was raised as to what "Heavy, calcined, hydrated magnesia" meant. This product has great demand in pharmacy on account of its smaller volume when used in cachets, papers, etc., and for some reason or other, most probably on account of its lower price, is mostly used by pharmacists. As a laxative, there is not much difference between the oxide, the carbonate and the hydrate. The result is that this particular product is used whenever heavy magnesium oxide or heavy magnesium carbonate is called for in a prescription. There is very little difference, if any, between magnesium hydroxide and a "heavy or light calcined hydrated magnesia." The alleged hydration takes place according to the equation:

$$MgO + H_2O = Mg(OH)_2$$

These two Magnesias, says Arny (Principles of Pharmacy), and referring to Magnesii Oxidum and Magnesii Oxidum Ponderosum, are prepared by the calcination of light and heavy magnesium carbonates from cold dilute solutions or from

hot concentrated solutions. The medicinal use of light and heavy magnesia is identical, both being laxative and antacid; the advantage of the heavy magnesia depending entirely upon its greater density, the average heavy magnesia occupying only about one-quarter the bulk of the light magnesia. In some cases the same substance can be precipitated in a light, flocculent form or in a heavy, granular form, giving rise to the distinction between "light" and "heavy" precipitates.

It is evident then, that "Heavy, calcined, hydrated magnesia" is some kind of "heavy magnesium hydroxide" containing appreciable amounts of magnesium carbonate of the "heavy" kind. It is worth while noticing that heavy magnesias, except this particular kind, are more expensive and scarce in this market so that their use is rather limited.

Regarding calcium carbonate it is astonishing to find products for medicinal use with impurities such as observed in this rather elementary study. The presence of sulphides is inexcusable and dangerous. Other impurities were found in larger amounts than in crude industrial chalk. It is hoped that the present campaign initiated and carried out by our Health Department will put an end to the introduction of drugs and drug-products unfit for medicinal use.

August 20, 1927.

A PHARMACOLOGICAL NOTE ON BAPTISIA TINCTORIA.

BY DAVID I. MACHT AND JAMES A. BLACK.

INTRODUCTORY.

Baptisia Tinctoria is a plant which has been described in the United States Dispensatories of all the older editions and is still to be found mentioned in the latest 21st edition of the Dispensatory of the United States published in 1926. While the value of this drug is open to question all kinds of extravagant claims have been made in regard to its medicinal virtues in all of the works. Thus we read of its being used as an emetic, cathartic, "hepatic and intestinal stimulant" and of its having been recommended in the treatment of Typhus, Scarlet Fever, Dysentery, and also of its virtues as a nervous stimulant, antipyretic, etc. Locally, preparations of this drug have been used for the treatment of laryngitis and applications to foul ulcers. The U. S. Dispensatory mentions the following N. F. preparations: **Dentifricium** N. F. and **Fluidextractum Baptisiæ** N. F. Perhaps the commonest use of this drug which is still prevalent is as an ingredient of certain mouth washes and dentifrices on account of its peculiar stinging and tingling taste to the buccal mucous membranes. Inasmuch as very little is known concerning the pharmacology of this drug a brief pharmacological examination was made of it by the authors and is here reported.

HISTORICAL.

The drug Baptisia *Tinctoria* or wild inidgo comes on the market as the **Radix Baptisiæ Tinctoriæ** and is the dried Rhizome and roots of **Baptisia Tinctoria** a perennial herb growing in the eastern United States and Canada (1). The taste of the root is extremely bitter and acrid, producing a tingling sensation of the mucous membranes of the lips, mouth and tongue. While the pharmacology of the sub-

stance has not been investigated, the chemistry of wild root has been quite thoroughly studied by such distinguished chemists as Husemann and Marmé (2), Partheil (3), Kobert (4) and others owing to its similarity to another alkaloid. It was found that the active principle of Baptisia, called by some Baptitoxin, is really identical with a powerful and interesting alkaloid known as Cytisin, the chemistry of which has been carefully studied by the above investigators. Cytisin is the active poisonous principle found in Laburnum (*Cytisus Laburnum*) and has been isolated also from several other species of Leguminosae besides Baptisia, namely, from *Ulex Europæus*, *Sophora Tomentosa*, etc. It was first obtained from Laburnum root by Gray (5). The empirical formula for this alkaloid has been first established by Partheil and is $C_{11}H_{14}N_2O$. This alkaloid Cytisin is remarkable physically in being very soluble in water and alcohol and almost insoluble in ether and chloroform. The pharmacology of Cytisin has been studied to some extent by Dale and Laidlaw who found that its properties classed it in the Nicotin group (6). Radziwillowicz found that Cytisin produces paralysis of the respiratory and vasomotor centers and affected also the spinal cord (7). Marmé found that Cytisin was especially poisonous for cats and dogs. Thirty to forty mg. given subcutaneously were found to be fatal for cats (8).

Toxicologically Laburnum poisoning is not at all rare. Cases of mass-poisoning by Laburnum have been reported by several writers and have been collected by Blythe (9), a total of one hundred and fifty-five cases of Laburnum poisoning in human beings, one hundred and twenty of which were among children. Vallance reported mass poisoning in fifty-eight boys who ate the root of an old Laburnum tree (10). The chief symptoms were vomiting, narcosis, pain in the stomach, diarrhea, catarrh of the gastro-intestinal tract, dilated pupils and muscular weakness. Poisoning in cattle has also been described following eating of Laburnum roots.

Inasmuch as *Baptisia Tinctoria* contains an active principle Baptitoxin together with several others, namely, Baptisin, Baptin, etc., the first of which at least is very closely related if not identical with Cytisin, it was found desirable to investigate the toxicity of Baptisia preparations and study some of their pharmacological properties. The preparations used in the present experiments were an infusion of Baptisia and a decoction of the same. These were deemed to be very suitable for pharmacological experiments inasmuch as the alkaloid Cytisin (Baptitoxin) has already been found by chemists to be freely soluble in water.

The infusion used in the present investigation was made from a finely powdered root by taking ten Gm. of the powder and pouring boiling water over it. The mixture was allowed to stand for one hour and filtered, with the aid of a suction flask. The powder was then washed with water sufficient to make 200 cc. of infusion.

A decoction of the drug was made by taking ten Gm. of the same powder, putting it in a flask with 200 cc. of water and heating the mixture to boiling. After bringing the water to a boil the boiling was continued for fifteen minutes, after which the cooled mixture was filtered as in the case of the infusion and made up to 200 cc.

EXPERIMENTAL.

Toxicity.—Injections of the infusion and decoction were made into white rats, rabbits and cats. Although Laburnum has been stated by some writers not

to affect the rabbit, the present authors found that Baptisia solutions were certainly very poisonous for this animal. On administering 10 cc. of the infusion to a rabbit weighing 1.5 kilo through a stomach tube the animal was markedly depressed, showing some narcotic effect. There was slight paralysis of hind legs. The animal lost its appetite and became greatly emaciated in a few days. An injection of 3 cc. of the infusion or decoction into a rabbit's ear vein was followed by more poisonous symptoms. Here again weakness of limbs was noted, and marked diarrhea.

In white rats injections of infusion and decoction were made intraperitoneally and such injections produced death, the fatal dose of the decoction being about 1 cc. per 100 Gm. of weight.

The most violent poisoning was produced by Baptisia infusions and decoctions in the cat. A subcutaneous injection of 5 cc. of such solutions given to a cat weighing 2.5 kilo or more was followed in five minutes by marked salivation and vomiting. Fifteen minutes later the pupils were dilated. There was twitching and spasmodic contraction of the muscles and collapse. The heart was at first slowed and then made more rapid; respiration was depressed and the animal was in moribund condition.

Pharmacology.—In view of the fact that the chief use of Baptisia at present is as an ingredient of certain mouth washes and dentifrices and in view of the fact that the taste of Baptisia preparations is an extremely bitter one producing tingling of the mucous membranes somewhat resembling that of aconite, the chief pharmacological interest in connections with the drug was thought to be in regard to its possible effect on the sensory nerve terminals. Experiments were, therefore made to determine whether the preparations of Baptisia had any local anæsthetic action.

The local anæsthetic effects of Baptisia infusion and decoction were carefully investigated in three well-known pharmacological ways, namely, 1. On the cornea of the rabbit. 2. On the skin of the frog. 3. On the conduction of sensory and motor nerve fibers of higher animals.

Experiments on the rabbit's eye were made by instilling solutions of the drug in the regular pharmacological way into the conjunctival sack and testing the corneal reflex. It was found that neither short nor long treatment of the cornea with Baptisia solutions produced any local anæsthetic effect whatever as far as the rabbit's eye is concerned.

Experiments on the sensory nerve endings of the frog's skin were carried out according to the classical pharmacodynamic methods. Frogs were pithed and the reflexes of the lower extremities were tested by immersing in weak acid solution. The skin was then washed off with water. After preliminary examination of the reflexes, one of the legs was dipped into a solution of Baptisia the other into control solution of water or saline, and after various intervals of time the effect of the solutions on the sensory nerve endings of the legs was tested. No evidence whatever was obtained indicating a local anæsthetic action.

Finally the effect of Baptisia solutions on the nerve conduction of the various fibers of the sciatic nerve of the cat was studied by applying bits of cotton soaked in the solution to the nerve so as to black conduction in case of an anæsthetic action on the part of the drug. Electrical stimulation was then applied above and below, according to the ordinary pharmacodynamic methods. No evidence, whatever,

of any anæsthetic effect of either ascending or decending sensory or motor fibers were noted even after prolonged application of Baptisia.

Only small percentages of Baptisia are generally incorporated into mouth washes or dentifrices. The antiseptic properties of Baptisia in such low dilutions (1%) could be *a priori* discounted. Nevertheless, definite proof of the non-antiseptic and non-germicidal properties of Baptisia infusion and Baptisia decoction were not lacking. It was noted in a few days that the infusion and decoction of Baptisia standing at room temperature became cloudy, due to the presence of micro-organisms. This indicated that even a pure or strong infusion and decoction were not antiseptic. An examination of these solutions kindly made by Dr. G. F. Reddish, Bacteriologist to this Institution, proved that the solutions were full of various bacteria.

SUMMARY.

It is thus evident that while Baptisia solutions are quite poisonous for various animals they do not exhibit any important pharmacological or therapeutic properties as far as the authors could ascertain. Such solutions were neither antiseptic nor locally anæsthetic. The rational use of such solutions is, therefore, very questionable.

REFERENCES.

(1) "Kraemer's Pharmacognosy," Philadelphia, p. 412 (1915).
(2) Husemann and Marmé, *Zft. f. Chemie.*, Vol. 1, p. 161 (1865).
(3) Partheil, *Berichte*, Vol. 33, p. 3021 (1890).
(4) Kobert, "Intoxikationen," Vol. II, p. 1175.
(5) Gray, *Edinburgh Med. J.*, Vol., 7 p. 908 (1862).
(6) Dale and Laidlaw, *J. Pharmacol.*, Vol. 3, p. 205 (1912).
(7) Radziwillowicz, *Dorpat. Ab.*, Vol. 2, p. 56 (1888).
(8) Marmé, *Göttinger gelehrte Nachrichten*, No. 24 (1871) and No. 7 (1887).
(9) Blythe, "Poisons," London, p. 406 (1920).
(10) Vallance, *Brit. Med. J.* (1875).

PHARMACOLOGICAL AND PHARMACEUTICAL
RESEARCH LABORATORIES,
HYNSON, WESTCOTT AND DUNNING.

A PHASE OF THE RELATIONSHIP OF CHEMICAL STRUCTURE TO PHARMACOLOGICAL ACTION.*

BY CHARLES W. BAUER.[1]

A discussion of the influence of an acid radicle that renders a drug water-soluble on its degree of toxicity.

Pharmacologists have given enough experimental evidence on the actions of drugs of known chemical composition that the manufacturing organic chemists have found the story of drug action written in the structural formula.

The pharmaceutical-synthetic chemist analyzes the need of the physician, goes to the laboratory and manufactures accordingly. He is interested in manu-

* Scientific Section, A. PH. A., St. Louis meeting, 1927.

[1] Professor of Organic Chemistry, Creighton College of Pharmacy, Creighton University, Omaha, Nebraska.

facturing medicinals and is concerned with the actions of radicles, nuclei and side chains, he is especially interested in the preparations that are the easiest and cheapest to prepare—their relationship to solubility and their pharmacological action.

The relationship of chemical structure to pharmacological action to be understood is necessarily studied from many angles. To the synthetic chemist one of the most important problems is, what influence will an acid radicle that renders a drug water-soluble have on its degree of toxicity? This is the problem under discussion in this paper.

Suppose we have a drug of favorable therapeutic activity, that is insoluble in water, what influence will the common radicles that are used to make drugs water-soluble have on its degree of toxicity?

Let us consider two well-known radicles—the sulpho group, SO_3H, and the carboxyl group, COOH—and their relationship to toxicity as has been worked out by leading pharmacologists. If compounds with the SO_3H or COOH group are insoluble they are usually made water-soluble by introducing an alkali metal.

Experiments by Frankel show that the degree of dissociation that an acid undergoes has no relationship to the degree of toxicity. Nitric, sulphuric and hydrochloric acids are examples of this, nitric and sulphuric acids being more toxic than hydrochloric. This holds true with organic as well as inorganic acids.

If we take phenol, C_6H_5OH, and replace the H of the OH group with an SO_3H group, a poisonous compound has been changed to a non-poisonous substance—phenyl-sulphonic ether. Phenyl-dimethyl-pyrazol, a poison, is changed to a non-poisonous compound with the SO_3H group—forming phenyldimethylpyrazol-sulphuric acid. Morphine, a very pronounced hypnotic in small doses, is transformed into a weak hypnotic as the sulphuric ether of morphine. Another example is the sulphuric ether of quinine, wholly inactive, while the action of quinine is known to all.

Nitro groups also have their toxicity reduced by the sulpho group, *e. g.*, Martius yellow changed to Naphtholgelb S.

The SO_3H has this influence on the toxicity of the phenols whether it replaces an H of the OH or replaces an H in the ring. In both cases the compound is rendered equally less toxic.

The introduction of a carboxy group and its relationship to activity and toxicity is equally interesting, *e. g.*, Cholin $(CH_3)_3{\equiv}N\begin{pmatrix}CH_2CH_2OH\\OH\end{pmatrix}$ an alcohol upon being changed to the acid Betain $(CH_3)_3{\equiv}N\begin{pmatrix}CH_2COOH\\OH\end{pmatrix}$ is rendered inactive.

The influence of COOH group on aromatic hydrocarbons is shown on benzene and naphthalene.

Benzene, C_6H_6, shows pronounced toxic properties in 2–8 grain doses, while benzoic acid, C_6H_5COOH, is safe in 12–16 grain doses.

Naphthalene, $C_{10}H_8$, poisonous in fairly large doses, is rendered physiologically inactive as monocarboxy naphthalene, $C_{10}H_7COOH$.

Phenol, C_6H_5OH, poisonous in 2 grains, is rendered therapeutically inactive as

meta and hydroxybenzoic acid. The ortho hydroxybenzoic acid is active, strongly antiseptic and antipyretic in a dose from 4 to 6 grains.

Of the dihydroxybenzenes, the ortho is the strongest poison of the three, while the carboxy acid of it, protocatechuic acid, $C_6H_3(OH)_2COOH$ 1.2.3., has neither therapeutic nor toxic properties in 4-grain doses.

Pyrogallol, $C_6H_2(OH)_3$ 1.2.3., is very poisonous while its carboxy acid, gallic acid, $C_6H_2(OH_3).COOH$, is non-poisonous and has neither antiseptic nor antipyretic properties.

Many other examples can be given, but in general the aromatic hydrocarbons and phenols have their toxicity reduced by the COOH groups, *e. g.*, aniline, $C_6H_5NH_2$, has its toxicity greatly reduced when changed to aminobenzoic acid, $C_6H_4NH_2.COOH$.

The OH group reduces the activity of the aromatic amines while the addition of the carboxyl group renders them non-poisonous, *e. g.*, $C_6H_5NH_2$ is a poison, $C_6H_4NH_2OH$ 1.2 is less poisonous, while $C_6H_3NH_2OH$ COOH 1.2.3. is comparatively safe.

If we introduce a COOH group into acetanilid $C_6H_5NH\ CH_3CO$, it is transformed to monocarboxyacetanilid, $C_6H_5NHCH_2CO.COOH$, changing it from an antipyretic to a non-active substance.

Phenacetin is a prompt antipyretic in 5- to 10-grain doses while phenacetin carboxy acid has no antipyretic properties.

In rendering these compounds soluble with either the SO_3H or COOH group the physiological activity of the original substance is destroyed, but in most cases the action can be brought back by esterification. Experiments made on various alkaloids show how esterification renders inactive substances active. Benzoylecgonine, an inactive substance, is changed to the active cocaine when the methyl group is introduced.

Tyrosin is non-poisonous, but by introducing the ethyl ester and HCl a strong poison is obtained. Aracaidin, upon esterification, gives us the physiologically active arecolin.

A group that can be used to make a drug water-soluble and still retain the properties of the mother substance is the hydrochloride of the amino or glycocoll group. The action of the new compound having about the same degree of activity as the parent compound, *e. g.*, benzocain, ethylamino benzoate, $C_6H_4NH_2.COOC_2H_5$ 1.4, is insoluble and has local anæsthetic properties. Novocaine or procaine hydrochloride is *p*-aminobenzoyldiethylaminoethanol, $C_6H_4.NH_2.COO.C_2H_4.N(C_2H_5)_2.HCl$ is water-soluble and is also a local anæsthetic. Stovaine and alypine are additional examples where the amino group and the HCl render the compound water-soluble—the other groups being responsible for the drug action.

Summarizing briefly, the sulpho and carboxyl groups and their alkali salts render many compounds water-soluble but destroy their degree of activity. Many times this activity can be restored by esterification. The hydrochloride of the amino or glycocoll group renders a drug water-soluble, still retaining the desired action of the drug.

REFERENCE.

"Die Arzneimittel"—Synthese 5th ed. By Dr. Sigmund Frankel, Berlin, 1921.

SUGGESTED STANDARDS FOR CHLOROFORM LINIMENT.*

BY FLORIN J. AMRHEIN AND MALCOLM J. MACLEOD.

In the list of research on Pharmacopœial Problems the Committee of Revision of the United States Pharmacopœia mentions Chloroform Liniment and suggests that an assay process should be devised and a maximum and minimum standard adopted. The authors, in their work as chemists in the food and drug laboratory of a town adjacent to Boston, collected and examined many samples of chloroform liniment and were amazed to find that only a very few of the samples checked with the results obtained on a sample of known composition. This led to the investigation that we are about to report upon. In preparing the samples of Chloroform Liniment for analysis the authors first prepared soap Liniment and from it made the Chloroform Liniment. Eight different samples of Chloroform Liniment were prepared, using various methods of preparation.

We first observed the general appearance of the Liniment, including its odor and taste, also its miscibility with solvents.

Description of Physical Properties.—A clear, transparent, straw to yellowish colored mobile liquid, having a characteristic ethereal odor, and a saponaceous, sweet, burning taste. It is miscible with alcohol and ether. It is not miscible with water, acetone, petroleum benzine, benzol, carbon disulphide, fixed and volatile oils.

The specific gravity of the liniment was determined with the Westphal balance at 15.56° C.

Sample no.	Sp. gr.	Sample no.	Sp. gr.
1	1.0680	5	1.0661
2	1.0675	6	1.0675
3	1.0690	7	1.0637
4	1.0684	8	1.0654

The refractive index was determined using the Abbé Refractometer at 20° C.

Sample no.	Refractive index.	Sample no.	Refractive index.
1	1.3925	5	1.3920
2	1.3920	6	1.3920
3	1.3925	7	1.3925
4	1.3925	8	1.3925

The average refractive index on soap Liniment was found to be 1.3720 at 20° C., and the average refractive index of Chloroform was found to be 1.4420. It was also found that wherever the Chloroform content was low in a sample the refractive index was low also provided that a soap Liniment of U. S. P. quality was used in its preparation. It was found that a sample of Chloroform Liniment could be low in Chloroform content and still have a relatively high refractive index due to high soap content in the soap Liniment.

Determination of Alcohol.—Place 25 cc. of the Liniment into a separatory funnel, add 75 cc. of a saturated solution of sodium chloride, rotate for a few minutes taking care not to form an emulsion and allow to stand until the Chloroform settles out. Then draw off the lower Chloroform layer into another separatory funnel, to it add 25 cc. of the saturated sodium chloride solution and shake out with 2–15-cc. portions of petroleum benzine and add the saturated salt solu-

* Scientific Section, A. PH. A., St. Louis meeting, 1927.

tion thus extracted to the mixture in the first separatory funnel, mix well and transfer to a distilling flask, distil and collect 50 cc. of the distillate. Cool to 15.56° C., take the specific gravity and compute the per cent of alcohol from the alcohol tables.

Sample no.	Specific gravity.	Per cent alcohol by volume.	Sample no.	Specific gravity.	Per cent alcohol by volume.
1	0.9428	45.53	5	0.9442	44.69
2	0.9432	45.28	6	0.9440	44.79
3	0.9438	44.92	7	0.9444	44.55
4	0.9440	44.79	8	0.9440	44.79

Determination of Total Solids.—Evaporate 10 cc. of the Liniment in a tared porcelain evaporating dish on a boiling water-bath for two hours. Then transfer to a drying oven and heat for 2 hours at 100° C., cool in desiccator and weigh. Platinum dishes are not used in this determination because they are badly stained and the stain is removed only with great difficulty and loss of platinum.

Sample no.	Solids per 100 cc.	Sample no.	Solids per 100 cc.
1	4.216 grams	5	4.170 grams
2	4.241 grams	6	4.244 grams
3	4.213 grams	7	4.286 grams
4	4.197 grams	8	4.248 grams

Determination of Total Ash.—The residue from the total solids determination was gently ignited until all of the organic matter was burnt off and the heat gradually increased and ignition continued until a white ash was obtained.

Sample no.	Ash per 100 cc.	Sample no.	Ash per 100 cc.
1	0.678 grams	5	0.699 grams
2	0.694 grams	6	0.702 grams
3	0.714 grams	7	0.702 grams
4	0.691 grams	8	0.701 grams

$$CHCl_3 + 4KOH \text{——} 3KCl + 2H_2O + HCOOK$$

Determination of Chloroform.—Into a flask fitted with a Bunsen valve place 5 cc. of the sample and 40 cc. of an alcoholic solution of potassium hydroxide (prepared by dissolving 30 Gm. of KOH in 30 cc. of water, cooling the solution and adding enough methyl alcohol to make 100 cc.) and boil for 10 minutes. Allow the mixture to cool and transfer to a 500-cc. volumetric flask and fill to the mark with distilled water mixing well. Pipette exactly 10 cc. of this dilution into a 100-cc. volumetric flask, add a few cc. of nitric acid, about 25 cc. of distilled water and exactly 50 cc. of 0.1 *N* silver nitrate solution. Shake well and add sufficient distilled water to make 100 cc. The mixture is then well agitated and filtered taking an aliquot part of the filtrate and determining the Chloroform using a modified Volhard's method. Each cc. of 0.1 *N* silver nitrate solution is equivalent to 3.98 mg. of $CHCl_3$. The equation for the saponification is as follows:

$$CHCl_3 + 4KOH \longrightarrow 3KCl + 2H_2O + HCOOK$$

Several attempts were made to find a simpler method for the estimation of Chloroform, and in the end for the accurate determinaton of Chloroform this method was adopted. This method was described by T. M. Willgerodt in the *American Journal of Pharmacy*. A rapid and approximate method for determining Chloroform in Chloroform Liniment which helps to identify the low samples is as follows:

Place 50 cc. of the Liniment in a 100-cc. graduated cylinder, add 10 cc. of carbon disulphide, and enough saturated sodium chloride solution to make 100 cc. Mix well and allow to stand until two distinct layers separate out. The lower carbon disulphide-chloroform layer will measure

between 24.5 cc. and 25.5 cc. for a Liniment containing between 29.5 cc. and 30.5 cc. of Chloroform per 100 cc.

RESULTS OBTAINED IN ASSAY FOR CHLOROFORM.

Sample no.	Cc. Liniment.	Cc. $AgNO_3$.	Cc. KSCN.	Factor KSCN.	Gm. $CHCl_3$ per 100 cc.	Cc. $CHCl_3$ per 100 cc.
1	5	50	18.0	1.0818	44.1028	29.88
2	5	50	17.95	1.0818	44.5329	30.17
3	5	50	18.05	1.0818	43.6724	29.59
4	5	50	17.90	1.0818	44.9632	30.39
5	5	50	18.00	1.0818	44.1028	29.88
6	5	50	18.95	1.0818	44.4844	30.34
7	5	50	18.00	1.0818	43.8401	29.70
8	5	50	17.95	1.0818	44.5329	30.17

The average Chloroform content by volume: 30.01 cc. per 100 cc.
The average Chloroform content by weight: 44.2788 Gm. per 100 cc.

Determination of Camphor.—The determination of camphor presents some real difficulties; the volatile substances in the Liniment have a tendency to retain some of the camphor of the Liniment. Also the volatile substances are readily shocked from solution taking with them some of the alcohol if not all of the alcohol of the Liniment. The authors are at present working on a method for the determination of camphor which they feel will be of practical value but at present have not sufficient collected data for a complete report. We hope to report on this phase of our investigation in a future paper.

In concluding the authors have ventured to recommend that the standards for Chloroform Liniment fall between the following limits:

1. That the Alcohol content fall between 44.5 per cent and 45.5 per cent by volume.
2. That the specific gravity of the Liniment fall between 1.0654 and 1.0690 at 15.56° C.
3. That the refractive index of the Liniment fall between 1.3920 and 1.3925 at 20° C.
4. That the total solids of the Liniment fall between 4.200 and 4.275 Gm. per 100 cc.
5. That the total ash of the Liniment fall between 0.690 and 0.710 Gm. per 100 cc.
6. That the Chloroform content fall between 43.5 Gm. and 45.0 Gm. per 100 cc. corresponding to not less than 29.47 cc. and not more than 30.48 cc. of Chloroform per 100 cc.

DEPARTMENT OF CHEMISTRY,
MASSACHUSETTS COLLEGE OF PHARMACY,
BOSTON.

GERMAN PRODUCTION OF ETHYLENE GLYCOL.

Emulating American production of ethylene glycol, two German concerns are coming into the market in competition with glycerin. It is believed that effective competition with glycerin will soon be a reality here with consequent dislocation of the market. Although it is as yet impossible to get essential details concerning local production, etc., observers consider the future of ethylene glycol with less scepticism. Production of glycerin in Germany fluctuates around 6000 tons annually and future competition in glycol would be further incentive to European glycerin producers to unite in a convention to combat danger from the new product. (Trade Commissioner William T. Daugherty.)

BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Compiled by A. G. DuMez, Reporter on the Progress of Pharmacy.

All articles in these lists will be presented in abstract form in the bound volumes of the YEAR BOOK, which is issued annually. Those desiring abstracts immediately can obtain them for a fee of one dollar each by communicating with A. G. DuMez, University of Maryland, School of Pharmacy, N. E. Cor. Lombard and Greene Sts., Baltimore, Md.

APPARATUS AND MANIPULATIONS.

Anon
New simple ampul filler
Pharm. Ztg., 72 (1927) 1231

PHARMACOPŒIAS AND FORMULARIES.

Scholar, Abel
British Pharmacopœia notes
Chem. & Drug., 107 (1927) 280

PHARMACEUTICAL PREPARATIONS.

Franklin, J. H.
Further note on Extractum Belladonnae Liquidum, B. P.
Pharm. J., 119 (1927) 395
Ostling, G. J.
Valuation of valerian root and extract
Dansk Tids. Farm., 1 (1927), 363; through *Pharm. J.*, 119 (1927) 210
Peyer, W.
Tincture of arnica
Apoth.-Ztg., 42 (1927), 1237
Phillips, L. W.
Identification of some simple B. P. tinctures
Australas. J. Pharm., (1926), 1016; through *Pharm. J.*, 119 (1927), 211
Rainey, J. W.,
Horse fat as a basis for ointments.
Vet. Rec., 7 (1927), 802; through *Pharm. J.*, 119 (1927), 405
Schmatolla, O.
Liquor cresoli saponatus
Pharm. Zentralh., 68 (1927), 624
Söderberg, Gustaf
Mustard papers
Farm. Revy, 26 (1927), 497
Stainier, Carl
Some considerations on the fluidextract of polygala
J. pharm. Belg., 9 (1927), 693
Weinland, R.
Determination of the potassium iodide content of tincture of iodine by the method of the German pharmacopœia 6
Apoth. Ztg., 42 (1927), 1223

PHARMACOLOGY AND THERAPEUTICS.

Aldersberg, D., and Perutz, A.
Treatment of chronic ulcers with insulin
Klin. Wochschr. (Jan. 15, 1927), 108; through *Pharm. J.*, 119 (1927), 119
Buschke, A., *et al.*
Thallium acetate for epilation in cases of fungus disease of the hair
Münch. med. Wochschr., 78 (1926), 815; through *Pharm. J.*, 119 (1927), 254
Carmichael, Emmett B.
Detoxification of rattlesnake venom by sodium ricinoleate
J. Pharmacol. & Exper. Therap., 31 (1927), 445
Coplans, Myer, and Green, Arthur G.
Internal antisepsis by means of sulphato compounds
J. Pharmacol. & Exper. Therap., 31 (1927), 433
Delgado, M.
Pharmacology of thallium acetate
Bull. Mexico Dept. Health; through *Pharm. J.*, 119 (1927), 297
Dixon, W. E., and De, Premankur
Action of certain quinine derivatives with special reference to local anæsthesia and pulmonary edema
J. Pharmacol., 31 (1927), 407
Dox, A. W., and Hjort, A. M.
Relative physiological properties of certain trialkyl and dialkyl barbituric acids
J. Pharmacol., 31 (1927), 455
Fox, J. Tyler
Luminal sodium in epilepsy.
Lancet, 213 (1927), 589; through *Pharm. J.*, 119 (1927), 405
Gions, P.
Coramine as a stimulant in ether and chloroform anesthesia
Arch. intern. Pharmacol. et Therap., 32 (1926), 373; through *Pharm. J.*, 119 (1927), 177
Gordon, B., and Cantarow, A.
Parathyroid extract for hemorrhage
J. A. M. A., 88 (1927), 1301

Graves, William P.
Ovarian therapy
J. A. M. A., 89 (1927), 1308
Jacobson, J.
Benzyl-cinnamate for pulmonary tuberculosis
Bull. des Hop. de Paris (1927), 418; through *Pharm. J.* 119 (1927), 147
Levaditi, G.
Action of bismuth in syphilis
Compt. rend., 184 (1927), 783; through *Pharm. J.*, 119 (1927), 118
Metadier, J.
Titanium oxide for the treatment of eczema
L' Union pharm., 68 (1927), 129; through *Pharm. J.*, 119 (1927), 119
Perrot, Em.
Strophanthus in therapy
Bull. sci. pharmacol., 34 (1927), 465
Rico, J. T.
Garlic as a vermifuge
Compt. rend. soc. biol., 95 (1926), 1597; through *Pharm. J.*, 119 (1927), 177
Rochaix, A., and Pinet, L.
Bactericidal action of some halogen derivatives of salicylic acid
Bull. sci. pharmacol., 34 (1927), 486
Sabalitschka, Th., and Weidlich, R.
Activity of medicinal yeasts and some yeast preparations
Apoth. Ztg., 42 (1927), 1224
Wilson, S. R.
Ether convulsions due to impurities
Lancet, 212 (1927), 1117

BOTANY AND PHARMACOGNOSY.

Gfeller, H.
Moisture content of digitalis leaves
Pharm. Acta Helv., 2 (1927), 179
Holmes, E. M.
Note on yage
Pharm. J., 119 (1927), 111
Liptak, P.
Simple method for the evaluation of ergot
Ber. Ung. Pharm. Ges. (Dec. 1926); through *Pharm. Weekbl.*, 64 (1927), 1026
Meulenhoff
Digitalis leaves of the new pharmacopœias with special reference to the Netherlands Pharmacopœia
Pharm. J., 119 (1927), 361
Sage, C. Edward
Note on licorice
Chem. & Drug., 107 (1927), 340
Vogelenzang, E. H.
Amylum Solani
Pharm. Weekbl., 64 (1927), 1069

ANIMAL DRUGS.

Sordelli, Alfredo
Preparation of insulin
Anales soc. quím. Argentina, 25 (1927) 57; through *Chem. Abstr.*, 21 (1927), 3252
Van d. Berg, L. U.
Determination of iodine in thyroid glands
Pharm. J., 119 (1927), 362

BACTERIOLOGY.

Andresen, P. H.
Investigations of the bacterial growth inhibiting effect of metal salts. I. Silver Salts
Dansk Tids. Farm., 1 (1927), 487

ALKALOIDS AND GLUCOSIDES.

Dekker, J.
Theobromine in cacao
Pharm. Weeklbl., 64 (1927), 1021
Frank, L.
Determination of nicotine in tobacco
Chem.-Ztg., 51 (1927), 658; through *Chem. & Ind.*, 46 (1927), 796
Henry, T. A., and Sharp, T. M.
Alkaloids of Picralima Klaineana
J. Chem. Soc. (1927), 1950
Keenan, George L.
Optical identification of alkaloids
Jour. A. Ph. A., 9 (1927), 837
Osada, S.
Constitution of conessin
J. Pharm. Soc. Japan, 546 (1927), 680
Read, B. E., and Feng, C. T.
Ephedrine content of Chinese ephedra
Pharm. J. 119 (1927), 356
Rosenthaler, L.
Arbutin
Pharm. Acta. Helv., 2 (1927), 181
Sage, C. Edward
Quinine sulphate and its storage.
Pharm. J., 119 (1927), 264
Tsan-Quo-Chou
Sikimitoxin, the toxic principle of Illicium Religiosum
Chinese J. Physiol., 1 (1927), 213; through Pharm. J., 119 (1927), 72
Weevers, H.
Function of caffeine in plant metabolism
Pharm. J., 119 (1927), 362

VOLATILE OILS.

Jermstad, Axel
Physical and chemical constants of Salvia sclarea oil and sclareol
Pharm. Acta. Helv., 2 (1927), 182

Kariyone, T., and Morotomi, S.
Essential oil of Echinopanax horridus
J. Pharm. Soc. Japan, 546 (1927), 671
Kirschbaum
Musk odor
Ber. deut. chem. Ges., 60 (1927), 902
Lasausse
Formation of black mustard oil
Ann. fals., 20 (1927), 328; through *Chem. Abstr.*, 21 (1927), 3423
Miller, Emerson R.
Volatile oil of Hypericum perforatum
JOUR. A. PH. A., 9 (1927), 824
Miller, Emerson R.
Monardella oil
JOUR. A. PH. A., 9 (1927), 828

MISCELLANEOUS PLANT CONSTITUENTS.

Jansen, B. C. P., and Donath, W. F.
Isolation of anti-berbi-berbi vitamine of rice polishings
Pra. K. Akad. Wetensch., Amsterdam, 29 (1926), 1390; through *Pharm. J.*, 119 (1927), 119
Read, B. E., and How, G. K.
Iodine, arsenic, iron, calcium and sulphur content of Chinese medicinal algae
Chinese J. Physiol., 1 (1927), 99 through *Pharm. J.*, 119 (1927), 72

GENERAL AND PHYSICAL CHEMISTRY.

Hattori, K., and Kani, J.
Supplementary notes on the theory of emulsification
J. Pharm. Soc. Japan, 546 (1927), 667
Roborgh, J. A.
Solubilities of drugs in glycerol
Diss., Amsterdam (1927), 1–45; through *Chem. & Ind.*, 46 (1927), 796

INORGANIC CHEMICALS.

Francois, Maurice, and Seguin, Laure
Procedure for the estimation of sodium borate
J. pharm. chim., 6 (1927), 244
Huggins, Maurice L., and Magill, Paul L.
Crystal structures of mercuric and mercurous iodides
J. Am. Chem. Soc., 49 (1927), 2357
Kolthoff, J. M.
Application of o-oxyquinoline to the determination of some metals in medicinal salts
Pharm. J., 119 (1927), 362

ORGANIC CHEMICALS.

Ahlbom, Sven
Simple reaction for distinguishing between vegetable and animal charcoal
Farm. Revy (1927), No. 23; through *Pharm. J.*, 119 (1927), 298
Angeletti, A.
Some probable combinations of acetylsalicylic acid with products of pharmaceutical use
Ann. chim. applicata, 17 (1927), 313; through *Chem. Abstr.*, 21 (1927), 3420
Austerweil, G., and Lemay, L.
New synthesis of thymol
Bull. soc. chim., 41 (1927), 454; through *Pharm. J.*, 119 (1927), 211
Bieskei, J.
Determination of formaldehyde
Ztschr. anorg. Chem., 161 (1927), 309; through *Pharm. J.*, 119 (1927), 211
Borloz, A.
Critical study of methods of analysis of antipyrine and pyramidone
Helv. Chim. Acta, 10 (1927), 543
Charonnat, R.
Solubility of pyramidon in water
Compt. rend., 185 (1927), 284; through *Pharm. J.*, 119 (1927), 364
Darmois, E.
Classification of compounds of the tartar emetic type
Bull. soc. chim. Belg., 36 (1927), 64; through *Pharm. J.*, 119 (1927), 176
Lumiere, A., and Perrin, G.
Gold thiopropanol sulphonate
Compt. rend., 184 (1927), 289; through *Pharm. J.*, 119 (1927), 405
Mallinckrodt, Edward, Jr.
Reactions of anæsthetic ethers with potassium hydroxide and with mercury and the test for foreign odors
J. Am. Chem. Soc., 49 (1927), 2655
Martin, Felix
Insolubility of adrenalin in oils
J. pharm. chim., 6 (1927), 248
Peterson, V. L., and West, E. S.
Volumetric estimation of hydroxyl groups in sugars and other organic compound
J. Biol. Chem., 74 (1927), 379
Rae, J.
Colorimetric estimation of coal-tar disinfectants
Pharm. J., 119 (1927), 332
Read, John
Researches on methones, menthols and menthylamines
Chem. & Ind., 46 (1927), 871

Sidgwick, N. V.
Coördination compounds
Pharm. J., 119 (1927), 251

Smith, E. L.
Method for the estimation of small quantities of water in alcohol
J. Chem. Soc., 131 (1927), 1284

Stokes, John H., and Chambers, Stanley O.
Bismuth arsphenamine sulphonate
J. A. M. A., 89 (1927), 1500

Surun, P.
Contribution to the study of vegetable charcoal
Bull. sci. pharmacol., 34 (1927), 471

Taylor, Haywood M.
Application of the U. S. P. X yeast fermentation test to colloidal silver compounds
Jour. A. Ph. A., 9 (1927), 820

CLINICAL TESTS.

Kleyer, G.
Simple method for the quantitative determination of acetone in urine
Pharm. Ztg., 72 (1927), 1262

Lieboff, S. L.
Simple method for determining chlorides in blood and urine
J. Lab. Clin. Med., 12 (1927), 702

PHARMACEUTICAL ANALYSIS IN HOSPITAL PHARMACIES OF CHINA.

BY JOHN CAMERON.*

Two recent articles by Wulling[1] and Swain[2] in the Journal of the American Pharmaceutical Association on the results of their analysis of medicinal preparations, purchased in retail drug stores in Minnesota and Maryland, suggested to the writer that there is another avenue of drug supplies which sometimes requires watching. We refer to the wholesale chemical and drug supplies which come to the various pharmacies from their wholesale dealers. Having had many years' experience in retail pharmacy in Great Britain and overseas we realize that it is well nigh impossible in a busy pharmacy to check up the purity and strength of all chemicals and drugs purchased for use in the compounding of prescriptions. It would be interesting to know of retail pharmacies where the majority of the items purchased from the wholesale houses were subjected to analysis to ascertain if they were up to the standard required by the U. S. Pharmacopœia.

It is perhaps different with the hospital pharmacist. He should have time (or take time) to analyze most of the chemicals and drugs which come to his pharmacy from the wholesale houses. During our tour of the United States in 1925 we were certainly impressed with the amount of routine analysis which was carried out in most of the hospital pharmacies visited. Might we suggest that some of these pharmacists should publish their analytical results—in many cases they would be very interesting and instructive.

In China we have for many years systematically checked by analysis most of our shipments of chemicals and drugs.

We say shipments because all of our chemicals and most of our drugs come to us here from abroad. We receive supplies from the world's markets—sometimes purchasing in New York, sometimes in Paris, or again it may be London. Occasionally we have purchased in Tokio.

---

* Member of The Pharmaceutical Society of Great Britain, Member of the American Pharmaceutical Association. Pharmacist, Peking Union Medical College, Peking, China.

[1] Jour. A. Ph. A., August 1927, pp. 722–724.

[2] *Ibid.*, same issue as foregoing, pp. 724–726.

It may be of interest to wholesale chemical houses in the United States if we list a few items which in the course of our routine analysis we have discovered were not perhaps up to the standard required or specified. We have used the pharmacopœia of the country of origin as the standard by which we assayed the chemical or drug concerned—if the chemical was mentioned in the pharmacopœia. For various reasons we will not mention the firms who have supplied the items listed, but we would state that most of these chemicals were purchased from bona-fide wholesale chemical houses in either the United States or Europe.

LIST OF ADULTERATIONS.

1. **Opium.**—A sample of opium we analyzed contained only 5% morphine. This opium, however, was not sold as complying with the requirements of any pharmacopœia.

2. **Cocaine Hydrochloride.**—The melting point of one sample was 8° above the maximum limit of 186°, but otherwise the sample responded to all the usual tests for this alkaloidal salt.

3. **Iodoform.**—This sample was labelled "Iodoform cryst. puriss B. P." On analysis we found four per cent of same. When gauze was treated with a paste of this iodoform and sterilized the gauze assumed a greenish color.

4. **Formaldehyde Solution 40%.**—On analysis we found this sample to be a 4% solution of Formaldehyde, HCHO. We suspected this sample on opening the bottles owing to the very weak smell of formaldehyde.

5. **Formaldehyde Solution.**—This sample had polymerized and on analysis was found to be of 30% strength only. In this connection we have found that during the very cold winter months of North China, December, January and February, it is advisable to store solution formaldehyde in a store room which is slightly heated; if stored outside in a court-yard during these very cold months there is a fifty per cent loss in formaldehyde.

6. **Acid Salicyl. B. P.**—This sample we found contained about 6% of sodium salicylate as an impurity. The whole sample had a reddish tint.

7. **Methyl Alcohol.**—This sample although labelled "chemically pure" we found to contain 14% of acetone.

8. **Sodium Hydroxide.**—This sample contained about 5% iron and was of a reddish color. The color in our opinion was due to the fact that the sodium hydroxide was shipped and stored in five-pound tin containers which were badly rusted when delivered to us.

9. **Bleaching Powder.**—This sample on analysis showed a very high available chlorine content. It was expensive but on the basis of chlorine content was economical.

10. **Bleaching Powder.**—This sample on analysis showed a 25% available chlorine content. It was expensive. In this connection might we point out the desirability of assaying each consignment of bleaching powder for the available chlorine content before using the bleaching powder for the preparations of Carrel-Dakin Solution. It will be evident that if equal amounts of Sample 9 and Sample 10 were used in preparing two lots of C-D Solution the resulting solutions could not comply with all the essential tests for alkalinity, etc.

11. **Saccharose.**—This sample was listed "extra pure" but was found to contain some dextrose. It was useless for the purpose for which it was required.

12. **Tragacanth Gum. Powdered B. P.**—Two samples were analyzed. One was found to be eight times stronger than the other in suspending properties. We were not able to account for this great difference in properties.

13. **Methylene Blue Tablets** (Sugar Coated).—A sample of these tablets was found to have burst the sugar coating. These tablets had been stored in our pharmacy here for three years.

14. **Quinine Tablets.**—One batch of quinine tablets was found to contain small splinters of wood.

15. **Green Soap.**—One sample of a shipment of green soap was found to contain a small percentage of a strong smelling fish oil.

16. **Compound Solution of Cresol.**—One sample of this disinfectant was found not to be properly emulsified. It had to be heated before being used.

17. **Morphine Hydrochloride.**—One sample of Morphine Hydrochloride—the container bearing the label of a well-known manufacturing house in Europe—was found to contain 15% of phenacetin. On inquiry it was discovered that this sample had been tampered with in the Orient somewhere. We detached the label and sent it to the firm concerned and they pointed out that the label was not their own but a very clever imitation. The danger of this kind of sophistication is evident.

18. We received early in 1927 a one-pound bottle from a medical man in Hankow labelled "*ACID PICRIC, POISON, TAKE CARE*" with the name and address of a wholesale Chinese drug company at the foot of the label. On analysis of the contents which had a slight yellow coloration we came to the conclusion that the words "Take Care" had a peculiar significance in this case. Our analysis showed the contents of the bottle to be: Picric acid, about 10 per cent; potassium sulphate, about 90 per cent.

Comment is hardly necessary, but we cannot refrain from quoting a few lines from the letter which accompanied the bottle written by the superintendent of the hospital who purchased the picric acid and used a little before discovering that there was something wrong with it.

> "This is obviously a case of the most bare-faced and deliberate adulteration or substitution. This firm is supplying a number of mission hospitals in Central China, which use the drugs they send in all good faith."

We have listed some interesting findings from our records of analysis in this laboratory which will prove our previous assertion[1] that sometimes chemicals and drugs coming to us from bona-fide wholesale houses fall below the standards of purity required and specified in the Pharmacopœia of the country of origin.

THE PURITY OF DRUGS FROM ABROAD.

There is another side, however, to the picture—the purity or freedom from adulteration of the chemicals and drugs we purchase from wholesale houses. In this laboratory we have submitted to analysis thousands of samples of drugs and chemicals during the past six years and it has certainly been most gratifying to find that in the great majority of examinations the samples were actually purer than required by the Pharmacopœia of the country from which the drugs came.

We have systematically checked the arsenic and lead limits of most of the chemicals in daily use in our pharmacy items such as boric acid, magnesium sulphate, sodium chloride, sodium citrate, etc., and in no case have we found these to be outside of the pharmacopœial requirements of purity.

Our surgical department is perhaps the busiest one we have and, therefore, we are continually receiving large shipments of anæsthetics—ether and chloroform. We analyze samples from each shipment received and it is gratifying to be able to report that in no case have we found any impurities present in these anæsthetics.

The percentage of impurities discovered is only about one; this, we think, reflects a great credit on the wholesale and manufacturing chemical houses of America and Europe. In our opinion we, who are separated by many thousands of miles from our sources of supplies, owe a great debt to the wholesale manufacturing chemical firms of America and Europe for the great care they must be continually exercising in the manufacturing and labelling of their products for foreign shipment. They have certainly established a very high standard in the purity and reliability of the chemicals and drugs they send out, which some of the recently organized Chinese pharmaceutical houses would do well to imitate.

We had the privilege of visiting most of the leading pharmaceutical manufac-

[1] J. Cameron, in *China Med. J.*, April 1927.

turing houses in America and Europe during 1925–26 and we realized then that it would be well-nigh impossible for any chemical or drug to leave the laboratories of the firms unless they were of proper standard.

We take this opportunity of thanking the various laboratories visited for the wonderful hospitality shown to us by the staffs; for their kindness in explaining many of their private processes to us and for their ready answers to the many questions we asked during our tour.

In the analysis of the various items listed I have had the assistance of Mr. Moody Meng, Ph.C., M.P.S. (London).

EDITOR'S NOTE: In a letter to the Editor, Pharmacist Cameron expresses the hope that his communication will stimulate many hospital pharmacists to publish results in their laboratories in the JOURNAL A. PH. A.

SCHIEFFELIN & CO.—THE OLDEST WHOLESALE DRUG HOUSE IN NEW YORK CITY.*

BY OTTO RAUBENHEIMER.

One of the chief divisions of that interesting subject "History of Pharmacy," as outlined in another paper before this Section, is the "History of Pharmacies and Drug Stores." During the preparation of a paper "Old Drug Stores in New York State," presented at the meeting of the New York State Pharmaceutical Association June 1927, at Thousand Islands, I came across the Oldest Wholesale Drug House in New York City, still in existence to-day. To record its history for future reference is the object of my paper.

In 1781, Effingham Lawrence established himself in New York as a drug merchant. His place of business was located at 227 Queen St., now Pearl St. He was directly descended from William Lawrence of Flushing, L. I., who was fined, in 1666, for being somewhat too independent in his views to suit Richard Nicolls, the English Governor to whom New Netherlands had capitulated in 1764.

In 1794, John B. Lawrence and Jacob Schieffelin bought the business from Effingham Lawrence, the firm being changed to Lawrence & Schieffelin. John B. Lawrence was a younger brother of Effingham and Jacob Schieffelin was their brother-in-law, having married Hannah, their sister. The firm was located at 195 Pearl St., opposite what was then called the "Fly Market" at the foot of Maiden Lane, in the ancient Dutch House, built in 1626.

In 1799, on October 18th, John B. Lawrence withdrew from the firm and the business was continued under the name Jacob Schieffelin. According to the *Dissolution Notice* Schieffelin sold both at wholesale and at retail.

In 1804, Jacob Schieffelin, 193 Pearl St., N. Y., published "A Catalog of Drugs, Medicines and Chemicals Sold Wholesale and Retail," printed by William A. Davis, 39 William St. This, on August 6, 1806 was "Examined and Approved by The New York Druggists' Association, Henry J. Schieffelin, Secretary." Here is the proof that as early as 1806 there existed a "New York Druggists' Association."

* Section on Historical Pharmacy, A. PH. A., St. Louis meeting, 1927.

To bring this fact to light is worth the trouble which the author has taken in this research! (See PROCEEDINGS A. PH. A., Vol. 55, p. 600 (1907)—"Remarks by Wm. Jay Schieffelin.")

In 1805, on January 1st, Jacob Schieffelin admitted to the business his son Henry Hamilton, a graduate of Columbia College (1801) and a lawyer. The firm was changed to Jacob Schieffelin & Son, 193 Pearl St. and several other warehouses. Their transactions were now conducted on a larger scale.

In 1814, Jacob Schieffelin retired from the firm, which was now composed of his three sons, Henry Hamilton, Effingham and Jacob, Jr., under the name of H. H. Schieffelin & Co. H. H. Schieffelin was very active in the organization of the New York College of Pharmacy and, in 1829, was elected *Vice-President*, and *President* in 1831 and 1832.

In 1835, after the great fire, the location was changed to Maiden Lane. In 1841, new and larger quarters at 104–106 John St. Here, in 1851, the pharmaceutical career began of that veteran pharmacist, 89 years old, and *Honorary President* of the A. PH. A., William L. DuBois, in Catskill, who according to my records owns the oldest drug store in New York State, established in 1795.

In 1848 the firm purchased the stock and drug business of Hoadley, Phelps & Co.

In 1849, Henry Hamilton Schieffelin retired from the business and four of his sons—Samuel Bradhurst, Sidney Augustus, James Lawrence and Bradhurst entered the firm—conducting it under the name Schieffelin Bros. & Co. These brothers constituted the third generation of the Schieffelin family.

In 1854, Samuel B. Schieffelin erected the six-story building at 170–172 William St., corner of Beekman St., which is still occupied (1927).

In 1859, William H. Schieffelin, the son of Samuel Bradhurst Schieffelin, being the fourth generation of the Schieffelin family, was admitted to partnership.

In 1860, when American petroleum was discovered, the firm at once established an office in Titusville, Pa., and was the first to bring petroleum into New York as an article of commerce.

In 1865, the four Schieffelin brothers retired, and the firm was conducted under the name of W. H. Schieffelin & Co. with William H. Schieffelin as a representative of the family.

In 1875, the firm bought the stock and absorbed the wholesale drug house A. B. Sands & Co., located at the N. W. Cor. Fulton and William Sts.

In 1882, a manufacturing laboratory was established in Front St. near Corlears Hook.

In 1890, William J. Schieffelin, son of William H. Schieffelin, being the fifth generation of the Schieffelin family, was admitted to partnership. He graduated from the School of Mines, Columbia University, in 1887 and continued his studies under the celebrated Prof. Baeyer in Munich, where he obtained his Ph.D. in 1889.

During 1894 extensive laboratory buildings for the production of fine chemical and pharmaceutical preparations were erected at Southern Boulevard, St. Ann's Ave. & 132nd St., in the Bronx.

In commemoration of the centenary of the firm, in 1894, a historical sketch of 56 pages with fine illustrations was published, "One Hundred Years of Business Life 1794–1894, W. H. Schieffelin & Co., New York." It is divided into three

parts: I, History; II, Exhibits from the Archives; III, Appendix—*One Hundred Years of Chemistry and Pharmacy.* The motto of this publication is

"Respice, Adspice, Prospice"
"Look back, Look at, Look forward."

This booklet is out of print, but through the courtesy of Mr. J. M. Gray of the firm, who furnished me with still further particulars, I was enabled to examine it.

In 1895, William H. Schieffelin having died during this year, the present title of the firm was adopted, namely Schieffelin & Co. In 1903, the firm became incorporated under the laws of the State of New York, the partners becoming directors of the Company. In 1906, William Jay Schieffelin, Sr. was elected to the office of *President* of the firm.

In 1917, the wholesale drug house Bruen, Ritchey & Co., 214 Fulton St., was adsorbed.

In 1919, William Jay Schieffelin, Jr., the son of William Jay Schieffelin, being the sixth generation of the Schieffelin family, was made a director and *Treasurer* of the corporation.

In 1921, the firm Britt, Loeffler & Weil, 269 Canal St., was taken over.

In 1922, William Jay Schieffelin, Sr., resigned as *President* and was made *Chairman* of the Board of Directors. His son William Jay Schieffelin, Jr., became his successor as *President.*

In 1923, W. Millspaugh, 34 Cliff St., discontinued business, and the inventory of his stock was purchased by Schieffelin & Co. In 1925, when Lehn & Fink discontinued the general drug business, the inventory of their stock was purchased.

CONCLUSION.

Such is the story, or better said, the authentic history, of the Oldest Wholesale Drug House in New York City, a record of which the American business life and pharmacy especially can be justly proud.

Seven changes in the composition and name of the firm occurred from its establishment in 1794 up-to-date (1927) which are as follows: 1794–1799 Lawrence & Schieffelin; 1799–1805 Jacob Schieffelin; 1805–1814 Jacob Schieffelin & Son; 1814–1849 H. H. Schieffelin & Co.; 1849–1865 Schieffelin Bros. & Co.; 1865–1895 W. H. Schieffelin & Co.; 1895 to date Schieffelin & Co.

During all this time only five changes in location have taken place, namely—1794–1799 at 195 Pearl St.; 1799–1835 at 193 Pearl St.; 1835–1841 at Maiden Lane; 1841–1854 at 104–106 John St.; 1854 to date at 170–172 Beekman St.

NANKING STARTS TO END OPIUM USE BY 1932.

The Nanking authorities have announced a program which has as a purpose the prohibition of opium smoking in China. The scheme is to place such a high tax on the drug that within a few years the use of it will have been stamped out. The Government control is suggested in the plan which is to be put in force on the first of January. The provisions have been placed in the hands of what is known as the Opium Prohibition Bureau, under the Minister of Finance. A tax of 70% on opium is to obtain for the first year; 100% for the second year and 200% for the third year. It is said that the greatest difficulty will be in stopping the cultivation of the poppy.

Nanking also intends to stop the importation of other narcotics, except for medicinal purposes.

THE STATE ASSOCIATION PROCEEDINGS AS SOURCES OF AUTHENTIC HISTORICAL MATERIAL.*

BY FREDERICK J. WULLING.

We pharmacists of America have as yet not sufficiently realized the great desirability, indeed the need of recording in a well-planned way our pharmaceutical development. The consciousness of that need is happily growing. Evidence of this is the establishment of the Section on Historical Pharmacy of our own ASSOCIATION and the recent creation in the Minnesota State Association of a standing Historical Committee. Possibly other State Associations have created similar committees but I have not heard of them. Such committees, if their work is enthusiastic and well outlined or planned, can do much to make the work of future recorders of pharmaceutical history easy and authentic. I suggest that our Section on Historical Pharmacy make it part of its work to enlist the interest and coöperation of all of the State Asociations, by formulating a plan whereby the several associations may undertake in a systematic way, the gathering of every possible and available historical material or records relating to their several States or regions, and that they go back to the very beginning of their respective developments and continue their records in the future from year to year according to plans to be outlined or formulated. In the devising of plans or methods no doubt valuable help could be obtained from some of the already existing historical associations covering ether fields of history. I have in mind such associations as the Minnesota Historical Society which occupies a half-million dollar building and staff of competent workers who have already expressed their willingness to give Minnesota pharmacists such advice and help as they may desire toward efficient results. Older associations exist in many States and all of them, because of their interest in all fields of history, would no doubt welcome opportunities to help towards the ends I suggest.

It would be presumptious on my part to suggest to our Section on Historical Pharmacy procedures or methods of approach to the State Associations and I am content merely to recommend a consideration of my suggestion.

Every State Association issues an annual proceeding or year book in which there could be published historical data carefully collected during the year preceding publication, to insure a proper sequence. As an illustration of what is meant I take the liberty of referring to the annual historical record in the Minnesota State Pharmaceutical Association Proceedings covering the complete record of activities and of the history of the University of Minnesota College of Pharmacy from year to year since its organization in 1892. Anyone desiring to write the history of the College would find complete, detailed and authentic material in these annual records.

In every city, locality, county or region no doubt some one could be found who would be willing to consult all available sources for a complete composite local history. The older members of the profession are always willing to help and the memories of some go back very far. In cases where these are not able or willing to write out such contributions as they could make they could be interviewed and

* Section on Historical Pharmacy, A. PH. A., St. Louis meeting, 1927.

their contributions recorded. I have interviewed several of the oldest Minnesota pharmacists and always succeeded in obtaining valuable data and facts which would otherwise have been lost to posterity.

Veteran pharmacists' associations or clubs are steadily increasing in number. All of them include members who could furnish many valuable local historical data, which would be interesting material for the State Associations to publish in their year books.

In conclusion let me say this brief article has been written hastily and with no intention of developing the thought back of it. The suggestion it contains is given for what you may find it to be worth.

SOME OBSERVATIONS ON PRESENT-DAY RETAIL PHARMACY.*

BY EDWARD S. ROSE.

It is evident from the many valuable papers read before this assembly from year to year on the betterment of retail pharmacy that many are trying to live up to the Rooseveltian motto—everyone owes some of his time to the upbuilding of the profession to which he belongs.

So this paper was prepared with the hope that at least someone somewhere might be encouraged to give more attention to that part of retail pharmacy which deals with the sale of drugs and medicines.

Every pharmacist naturally is interested in the "bread and butter side" of his business and has doubtless in many instances followed the path of least resistance or has unwittingly been led by the pharmaceutical press or otherwise into the many side-lines with the hope of making money. Be it as it may, the pharmacist has permitted himself to-day to become in so many instances a mere tradesman.

Witness the able and exhaustive editorials on this subject recently published in the pharmaceutical press. The opening paragraphs of an article are devoted to a comparison of grocery stores and drug stores. If every pharmacist on leaving college had resolved to henceforth uphold the traditions of his honorable profession, no such comparison would be possible. Contrasts might be made but not comparisons.

The ever-increasing number of side-lines is proving a bugbear in retail pharmacy. In many instances they have proved an evil, resulting in loss of money and even failure in business.

"Cut prices" are a real menace to the independent pharmacist, unless he takes steps to meet the condition. As early as 1881 George J. Seabury began a series of articles in the pharmaceutical press, dealing mainly with the "cut price" evil. So at that very early date pharmacy began to experience a condition which has probably grown to be our most disastrous trouble-maker.

Short profit and "cut prices" have increased through these years, due to many factors. Manufacturers have carried on intensive advertising to the consumer, stating retail prices that meant short profit to the pharmacist. Chain and department stores have steadfastly followed the plan of cutting prices on nationally ad-

* Section on Commercial Interests, A. PH. A., St. Louis meeting, 1927.

vertised goods as a bait to lure people to their places of business. The Federal Trade Commission has not helped matters. Here and there will be found an independent who disregards the ethics of his profession and cuts prices.

"Cut prices" may be here to stay; if so, let the independent pharmacist adjust his business so as to protect it from this evil.

There is a wide-spread belief in the trade that the chain store is destined to replace the independent. Since the grocery business, in particular, has been lost to the chain stores, it is argued that other businesses will follow, including pharmacy. About five per cent of the drug stores in the United States are parts of chains and they are said to do 20 per cent of the business.

Such a statement ought not necessarily scare the independent pharmacist when he discovers what that 20 per cent of business consists of. In a recent drug-journal article the president of an organization representing 500 chain stores doing an annual business of $75,000,000 is reported as saying that 90 per cent of the organization's requirements consists of toilet articles, candies, novelties, rubber goods and soda fountain supplies. Another large chain of stores in the middle west claim 65 per cent of their business is from the soda fountains and lunches.

Is that pharmacy? No, it isn't pharmacy, but it is encouraging news to the pharmacist whose chief concern is the production and distribution of drugs and medicines. It should further open his eyes to his possibilities.

The pharmaceutical press has always been friendly to the retailer, but at times has kept silent or has been indifferent when the interests of the national advertisers were in conflict with those of the retailer. To-day the pharmaceutical publisher would like to extricate himself from this unhappy position. Should the chain store entirely replace the independent, there would be little need for the drug journal. House organs of the chain would take their place. The publisher is no exception to the rule that one's post-sight is always better than his fore-sight, so now it must be very evident to him that something must be done to place retail pharmacy on a firm foundation.

We all may have our opinions, pro and con, on the chain-store situation. The author of this paper wishes to express himself in the belief that the independent pharmacist can always be in the majority if he will but take advantage of conditions, especially favorable to him.

While to the chain store are conceded advantages in purchasing power, its greatest handicap is lack of personal contact with the customer, which the independent enjoys and on which he should capitalize. If only 10 per cent of the chain's business is drugs and medicines, there should be much rejoicing among the independents.

So long as there are people there will be sick people, and so long as there are sick people there will be a demand for drugs and medicines. In fact, it requires no great stretch of the imagination to believe that most people have something the matter with them most of the time. Now here is where the independent should function if he wishes to practice real pharmacy, be of genuine service to the community and make a good profit in his business.

Let us now turn our thoughts to those things that the independent can well afford to give particular attention to and which should assure a future without the dread or fear of being replaced by the chain or ruined by "cut prices."

Though the amount of business done in the prescription department is small on the average, it is this department that helps very materially in establishing the reputation and professional standing of a pharmacy. So it should receive especial attention, along with diagnostic work for physicians and the sale of biologicals and associated products.

In college we were taught the manufacture of pharmaceuticals and were advised to buy nothing we could possibly find time to make profitably. Most of us to-day have reversed the advice and prefer to make nothing that we can buy. Had the college advice been generally followed many of the present unfavorable conditions in pharmacy would not exist.

We would encourage the return to manufacturing in the individual stores of many pharmaceuticals that will prove profitable. Of course the manufacturer has many advantages over the retailer in quantity production, but large quantity production calling for special facilities is not necessary in retail work. A pharmacist, with a little ingenuity, learns to do a surprising amount of very profitable work with meager facilities.

Let any pharmacist who has never really interested himself in the manufacture of pharmaceuticals spend some time with the Pharmacopœia, National Formulary and a few price lists, selecting such items as he has much use for and in each case answering his own questions: —What does it cost to make this? What does it cost to buy it? He will surely have some surprises. He will conclude that while consistency is a jewel he has come to the wrong place to look for it. One thing he will find is that the cost of material and the labor involved have little to do with the price and that the higher the cost of the material the better it pays him to make it himself.

The suggestions in this paper are not based on fancy but on facts demonstrated during 50 years of retail pharmacy. Our store is a small one employing six people with additional help at times. Our slogan has ever been "buy nothing that can be made at a profit." While we handle lines of staple sundries that have been sold in drug stores for half a century at least, such as, brushes of all kinds, soaps, perfumery, creams, face powders and other toilet articles, rubber goods and sick-room supplies, we have neither a soda fountain nor a cigar case, and are endeavoring to reduce the number of sundry lines.

Everyone is expected to be busy at all times. Looking after the needs of the customer is always first. At other times manufacturing is carried on or stock is gotten ready for the trade to come. This plan is certainly not new, but is a profitable one to follow.

We have found it advantageous to make many pharmacopœial and N. F. preparations in small quantities. On a larger scale we make ointments of zinc oxide and sulphur in 50-pound batches, ground in an ointment mill; antiseptic solution similar to the N. F. in 6-gallon lots, altogether about a barrel a year; milk of magnesia about 400 pints; elixir iron, quinine and strychnine many gallons a year; a tragacanth base toilet cream, about 2000 bottles annually in 4-, 8- and 16-ounce sizes; an analgesic balm, 10 p.c. menthol, 30 p.c. methyl salicylate in a lanolin base, of this several hundred dollars' worth are sold annually in jars and tubes; compound cresol solution, 30 to 40 gallons a year; we are equipped to make compressed tablets; we make large quantities of distilled water; such preparations as

corn collodion, cough mixture, hair tonic, pepsin mixture, laxatives, etc., are prepared as an individual line to compete with others of similar character.

We feature several toilet articles of our own make, as refreshing cologne, perfumes, hair oil, after-shaving lotion, a deodorant, a depilatory and especially a cold cream made from oil of sweet almonds. This cream is made twice a month so it reaches the customer in fresh condition, a point greatly appreciated. A recent shipment of 1-, 2-, 4- and 7-ounce square opal jars for this preparation weighed 800 pounds.

For the farmer we make lime and sulphur solution, stock dip, fly repellant and certain poultry and stock remedies.

With the exception of mustard and red pepper we grind all the spices we sell. We make most of the natural flavoring extracts, using vanilla as a leader, made only from Mexican and Bourbon beans, which we buy in 25-pound lots.

Household items which the retailer usually buys from the jobber already packaged, we put up ourselves using the familiar round pasteboard packer or tin cans for solids and glass or metal containers for liquids. This enables us to buy in barrel lots—powdered alum, boric acid, borax, epsom salt, Glauber's salt, blue vitriol, copperas, sodium bicarbonate, moth balls, naphthalin, petrolatum, cod-liver oil, 8–10 barrels a year. In drums, liquid petrolatum, both light and heavy; crude oil; turpentine; denatured alcohol. In 100-pound drums, carbon bisulphide, carbon tetrachloride, cresol, paradichlorbenzene. During this past year we purchased about a ton of glycerin, mostly sold as an anti-freeze in automobile radiators.

The writer appreciates the opportunity afforded him to tell this section concerning the practice of our store which has carried on for over half a century. What we are doing isn't new but we think it good pharmacy. We are giving particular attention to the production and sale of drugs and medicines. We believe that any pharmacist can conduct his business in a similar way, adjusted to meet conditions of his particular community, and build up a patronage that will weather the attacks of even our most dreaded evils—"chain" stores and "cut" prices.

BOERNER'S PHARMACY,
IOWA CITY, IOWA.

MARKETS FOR PREPARED MEDICINES.

The U. S. Department of Commerce has published in book form *Trade Promotion Series*, No. 48, "Markets for Prepared Medicines," by M. C. Bergin of the Chemical Division. The report may be obtained by addressing the Superintendent of Documents, Government Printing Office, Washington, D. C. Nearly all of the individual reports are supplemented by comments. For example, that on the Philippine Islands conveys the following information:

"Before pharmaceutical preparations can be sold in the Philippine Islands they must be approved by the board of pharmaceutical examiners, the members of which are appointed by the Government. The formula from which the medicine is prepared must be displayed on each package. Preparations containing alcohol must have the alcoholic content stated on the label, and such preparations are subject to a tax on this alcoholic content. Those products containing drugs or chemicals considered dangerous may only be sold to individuals having a doctor's prescription for their use, but those not containing substances deemed dangerous will be granted a license permitting unlimited sale.

"In order to obtain a license, the manufacturer or exporter must submit to the board of pharmaceutical examiners, through a licensed pharmacist, two packages of the remedy in question for examination and approval. In addition, he must submit a duly executed document certifying to the exactness of the formula. All medicinal preparations approved by the board must have the formula from which they are manufactured printed on the label."

DEPARTMENT OF BUSINESS MANAGEMENT

Conducted by Paul C. Olsen.*

COMMENTS, QUESTIONS AND SUGGESTIONS ARE INVITED AND WELCOME.

Readers are invited to submit comments, criticisms and suggestions regarding the material which appears in this department. The Editor also will undertake to answer questions regarding general problems of business management. Letters of general interest will be published, but the writer's name will not be revealed without his permission.

THE PSYCHOLOGY OF EFFECTIVE DISPLAY.

(*Continued from October* JOURNAL.)

Color photography is a subject which has engaged the attention of countless experimenters for many years. Why are not the blacks, whites and greys of ordinary photography completely satisfactory? Why has there been all this effort to develop photography in colors?

Photographs and other reproductions look more natural when they appear in the colors in which they are to be found in real life. Objects are more readily recognized when reproduced in natural colors. In other words, color assists in recognition. It quickens the speed with which people on seeing something know it for what it is.

Colors not only help a person to recognize objects, but also cause things to be seen more quickly. That is to say, an object in black, white and grey won't be seen (under the same conditions) as quickly as one in colors. That is the reason that advertisements in color, in a magazine for instance, usually have a greater power to attract attention than would the same advertisements in black and white. The only exception I know of is, if virtually all the advertisements in a magazine are in color; then a black and white advertisement stands out. That, however, is the principle of contrast in operation.

Thus it appears that color has two values as an attention getter. Objects, photographs and other reproductions get more attention when in color, because then they are more readily and quickly recognized. Secondly, color of itself possesses greater attractive power under most conditions than corresponding objects, photographs and other reproductions in black and white.

In the preceding articles of this series I have been discussing various mechanical and interest factors which have the capacity to attract attention to displays. From the preceding paragraphs it is apparent, I am sure, that color, too, is an interest factor which can be employed effectively to draw attention to displays. But there are many different colors and, likewise, many different conditions under which they may be used. Naturally, therefore, some colors in particular situations are more effective in attracting attention than others. My object in this article is to point out some definite ways to use colors profitably in displays

* Instructor of Merchandising, Wharton School of Finance and Commerce, University of Pennsylvania, Lecturer on Business Administration, Philadelphia College of Pharmacy and Science.

to attract attention. To do this it is desirable to consider each of the principal colors separately.

There are two general ways in which the attention value of colors may be analyzed. The first is with respect to characteristics which are really inherent in the colors themselves. For instance, red is the universal warning or danger signal because red, to a degree greater than any other color, has the capacity of arresting the eye.

The second classification which may be made of colors is with respect to the associations which they call to mind. For instance, red and green together suggest Christmas; a golden yellow, Halloween; black, mourning, and so on. Green suggests forest coolnesss; and blue, coldness.

I have said that red is chosen as a danger signal because of its capacity to arrest the eye. A generally accepted theory is that the principal or primary colors are red, yellow, green and blue. It is believed that all other colors may be made from combinations of these four.

Bear in mind, please, that I am speaking of the creation of these colors and combinations of them only with regard to the way they are seen by you and by me. The way colors are made—that is the pigments used to produce them—is quite another matter. Our concern here is not with paint manufacturing but, rather, with the effects that these colors and their combinations have upon the people who see them.

In a consideration of the impressions created by colors—black, white and grey deserve special mention. Black is the negation of all color; in direct contrast to this, white is the combination of all colors. To prove this, it is only necessary to recall the experiment of hanging a prism of glass next to a window through which the sun is shining. The white light of the sunshine is separated in passing through the prism into its component colors, and shafts of these various colors appear on the opposite side of the prism.

Grey is the result of a mixture of black and white, and may also be obtained in another way to which reference will be made.

The four primary colors—red, yellow, green and blue—are divided into two groups. One group is called the active group and in it are included red and yellow. The other group is the passive group and it includes green and blue.

That simple classification has a very important significance for the person trying to create effective displays. The active colors have in them the capacity to reach out and draw attention to themselves. On the other hand, the passive colors seem to draw away and recede from the observer. A simple experiment easily proves this. As you stand at night on the rear platform of a moving train, notice how much nearer the red signal lights *appear* than the green signal lights placed side by side with them. Notice for how much greater a distance the red lights can be seen. Contrariwise, notice how much more quickly you first see a red light than a green light of equal strength, placed at equal distance.

The shrewd merchant will notice at once the attractive powers of red and yellow to draw attention to his displays. Don't overdo them, however. A mechanical factor in drawing attention to a display is intensity. But too much intensity, while it possesses tremendous power of attraction, repels almost at the instant

of attraction. People are drawn to but won't stare long at a powerful electric light. Too great a use of the active colors has the same effect.

The intensity of the active colors—red and yellow— may be used to attract attention without the risk of later driving people away, by making use of the passive colors. The passive color corresponding to red is green and the passive color corresponding to yellow is blue. In other words, the red reaches out and draws the eye to the display of which it is a part and the eye is held by the restful contrast of the passive green.

From these four primary colors, an infinite number of combinations can be produced. For instance, red added to blue results in various purples and violets. Red and yellow produce orange, a color of remarkable intensity because it is a combination of two intense primary colors.

A curious result occurs when red and green are mixed. The result is grey! That is why they are called complementary colors; one neutralizes the other. They are diametrically opposite each other and a mixture therefore is bound to produce a neutral result. In the same way, a combination of yellow and blue produces grey because they, too, are complementary colors.

These principles form the basis of color harmony. It is only human nature for the eye to be impressed unfavorably by colors which are inharmonious and likewise to be impressed favorably by colors which are harmonious. What makes some colors create favorable impressions and others unfavorable impressions?

A number of theories are suggested to answer this question. One theory which finds considerable acceptance is this: Colors which are complementary produce harmonious combinations because, as was explained in the case of red and green, one tends to relieve the effect of the other.

On the other hand, violet and deep orange do not produce a harmonious combination. Violet is a mixture of red and blue in which red is decidedly the more prominent component. Deep orange is a mixture of red and yellow in which red again is dominant. The result of the unequal mixture of red with two other primary colors, neither of which is a complement of red, results in an unbalanced and, therefore, inharmonious combination.

The mixture of grey with any color has a tendency to reduce the brightness of that particular color. The pure color—the color which contains no grey—is, therefore, brightest of all. A combination of colors of unequal brightness is apt to be inharmonious. With a little practice it is easy to tell whether or not colors are of approximately equal brightness.

When a color is mixed with white the mixture is called a tint. Tints of red, for instance, are the pink colors. Don't confuse tints with the combinations which are created by mixing grey with a color. A pink may be just as bright a pink as the brightest red is a red. The difference is simply that the tint has white in it.

When a color is mixed with black the mixture is called a shade. Shades of red, for instance, are known by such names as deep red, dark red and so on. Here, too, shades of colors should not be confused with the dulling of the intensity of colors which is produced by the addition of grey. Incidentally, the intensity or brightness of tints and shades, as well as that of pure colors, may be reduced by their mixture with grey.

Aside from the active or passive natures of various colors, many colors have a

particular significance or convey a particular impression. Red suggests warmth and fire and therefore its use tends to arouse attention, interest and action. Its active nature, however, is a reminder that too great a use of it for these purposes repels people and therefore defeats the very end for which it is intended.

Green suggests coolness, the woods and, in fact, all outdoors. Blue is suggestive of the sea. Less intense blues suggest winter and coldness.

Yellow suggests light and warmth. Gold, which is one mixture of yellow and red, suggests, of course, wealth and value. Purple suggests royalty and quality. White is the symbol of purity and black the indicator of death, mourning and despair. Black also is an indicator of dignity. Sometimes it is used effectively to give the impression of mystery. Steel grey also suggests dignity; in addition, it creates impressions of strength and solidity.

The significance of this so-called language of the colors is this. Suppose in a display a merchant wants to suggest the idea of purity. Perhaps his idea is to show the absolute sanitation and cleanliness with which candy is made in his kitchens and his plan is to put in his window some of the apparatus he uses in making candy. The mere use of white wherever possible in the construction of this display helps to convey to the minds of people who see it the idea he wants them to get—purity—because white by the very nature of the color itself conveys the impression of cleanliness and purity. Other colors may be used in this same way to help to convey to people the particular connotations that these colors have.

In addition to these universal reactions to colors, there are other reactions produced as a result of national and sectional customs and habits. For instance, red and yellow are favorite Chinese colors. Russia has a favorite red and Ireland its well-known green. Christmas colors are red and green; these colors in a Christmas display help mechanically therefore to strengthen the Christmas spirit which the display is designed to arouse.

Orange is the Halloween color and purple and white are the Easter colors. Sometimes the colors appropriate to a particular seasonal or holiday display will be all of the active group—reds and yellows. Halloween suggests, for instance, a liberal use of orange, so liberal, in fact, that its very intensity may drive people away. The orange can be relieved with black—certainly the most passive of all backgrounds. When this is not practical the brightness and intensity of the orange can be reduced if the duller orange hues are used. As explained before, the dullness of a color is measured by the amount of grey in it.

Contrariwise, when custom dictates that one of the passive colors shall occupy the most prominent positions in a display, such passive colors, the blues and greens, may be intensified if care is taken to make certain that they are of fullest brightness; that is, entirely free from the dulling effect of any greys mixed in them.

Colors in themselves when appropriately used have thus, it appears, the capacity to tremendously strengthen the attention and interest values of a display.

(A fifth article in this series will appear in the next issue.)

THE DEPARTMENT OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

A. C. Taylor, President, Washington, D. C. J. W. Gayle, Treasurer, Frankfort, Ky. Lucius L. Walton, Chairman of Executive Committee, Williamsport, Pa. H. C. Christensen, Secretary, 130 N. Wells St., Chicago, Ill.

ACTIVE MEMBER STATES.

Alabama	Iowa	Nebraska	South Carolina
Arizona	Kansas	Nevada	South Dakota
Arkansas	Kentucky	New Hampshire	Tennessee
Colorado	Louisiana	New Jersey	Texas
Connecticut	Maine	New Mexico	Utah
Delaware	Maryland	North Carolina	Vermont
D. of Columbia	Massachusetts	North Dakota	Virginia
Florida	Michigan	Ohio	Washington
Georgia	Minnesota	Oklahoma	West Virginia
Idaho	Mississippi	Oregon	Wisconsin
Illinois	Missouri	Pennsylvania	Wyoming
Indiana	Montana	Rhode Island	

HOW STATE BOARDS PREVENT CHEATING IN EXAMINATIONS.

A number of very interesting replies have been received as a result of the query sent out by the N. A. B. P. Secretary's office asking what means the various Boards adopt to prevent cheating in State Board examinations.

The Iowa Secretary, H. E. Eaton, writes in a humorous vein, "I am glad to say that we have not caught a fellow cheating during the past five or six years. We only have about twenty-five to forty taking our examinations, and they are seated about five feet apart, and with three supervising members, they don't even look cross-eyed. The greatest difficulty we had some time back was for one to write out his answer in bold type on a sheet of waste paper and then 'unconsciously' push it over where it could be seen across the aisle."

The Kentucky Board relies on effective separation of candidates, an arbitrary seating plan, and close personal supervision during the examinations.

In the District of Columbia, an attempt is made to break up cliques by using a room large enough to accommodate two or three times the usual number of candidates. A number is placed on each desk corresponding to the applicant's number, and he is required to sit at this particular desk regardless of where his friends may be placed. To prevent fraud, a photograph must be filed with the application and this is used for comparison on the day of examination. Two examiners patrol the room while the examination is in progress. Secretary Kerfoot says that he realizes it is impossible to prevent cheating entirely, but great care is used by the Board in conducting examinations. At times it has been necessary for the entire Board to be on duty during a practical examination, as there is more likelihood of cheating in this branch than in any other.

Another important angle of the question is stressed by the Virginia Board. Secretary Winne says, "Our first safeguard against cheating, and an important one we believe, is the safeguarding of the questions before the examinations. These

are sent to the Secretary's office by registered mail by the several members preparing them. They are carried through to the finished product in the office under the Secretary's care. After editing the originals, stencils are made and the questions run off on a mimeograph, and the good copies filed away under lock to which only the Secretary has the key, and the stencil and all spoiled copies are also locked up immediately after the printing and are, later, destroyed. The questions used are in the Secretary's care until handed to the applicant. In my opinion, this is safer than trusting them out to a printer. Just at the present time in Virginia there is a case being handled by the Law Board involving the attempt of an applicant to secure advance copies of examination questions from a printer."

"During the examination itself," Secretary Winne continues, "we carefully watch what is going on. We do not attempt to search applicants or anything of that sort, but do require any books or papers brought into the class room to be left at the examiners' desk during the examination. We stress our practical results very highly, knowing that this work speaks for itself in a more telling way than the written work. While we make no separate grade, we conduct oral examinations at times, which are classed as practical, and we depend a great deal on this also. There can be little cheating in the laboratory, and practically none in the oral."

Ohio reports that it has been a number of years since cheating has been detected in an examination. Secretary Ford outlines the plan used as follows: "When the examination starts, the President issues a warning to the entire class that communicating with one another in any manner will result in those detected being escorted from the examination room. In placing the candidates, we usually have them all in the same room and, as far as possible, place an assistant pharmacist between two pharmacist applicants. During the examination, the five members and the Secretary are busy moving among the candidates in all parts of the room and by so doing the candidates have little chance for cheating. It occurs to me that since we have had our high school and college of pharmacy requirement, we do not have the desire to cheat as it existed prior to the enactment of these prerequisites. The fact is that we have detected very few such incidents in the last number of years, while prior to the prerequisite requirement, it was rather common for us to find an applicant cheating."

Secretary Fischelis of the New Jersey Board reports that two registered pharmacist applicants were found communicating during the July examination. When their papers were examined, it was very evident that one man had copied considerably from the other. Both men were cited to appear before the Board for a hearing and confessed to having given each other help. The Board promptly suspended both of them from future examinations for a period of one year. The New Jersey Secretary states that the only way the Board has found for preventing cheating in examinations is to exercise eternal vigilance.

Wisconsin finds its most effective weapon in having a sufficient number of extra people watch the candidates during the written examination. At a recent examination when the class numbered 195, the five Board members were present and five of the faculty members of the State University assisted. The Dean of the school donated the services of five of his professors for a day for this duty.

Secretary Ruenzel of that State offers the following interesting suggestion for

preventing cheating: "It would be well to suggest that a man walk up and down the aisle armed with gun and bayonet for there are some that need it."

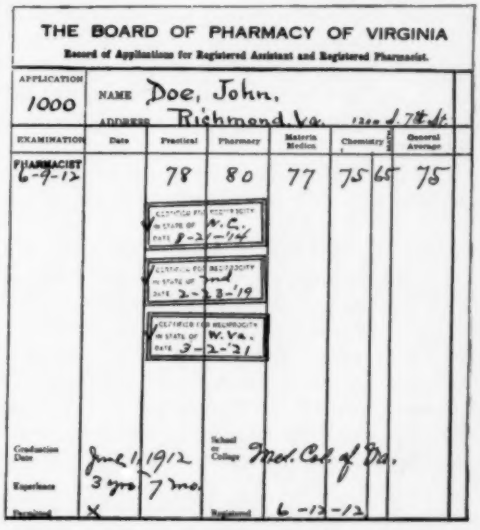
KEEPING TAB OF THE ROAMERS.

BY A. L. I. WINNE.

Perhaps it will be of interest to Secretaries of other Boards of Pharmacy to know how one State attempts to keep a simple record of the pharmacists who go into other States through reciprocity, and so, for what it is worth, I submit herewith a specimen record sheet of a typical registrant. (See illustration.)

This record sheet provides space for a fairly complete record of the applicant's experience, education, and his showing in the State Board examination, or examinations if he has had to appear more than once. The application number of any given applicant remains the same no matter how often he may appear for examination, and also in the case where he might first be registered as an assistant and later as a pharmacist.

I wish to direct attention to the check which is kept on the pharmacist after he is registered and passes out of the State by the reciprocity route. This is taken care of by a little rubber stamp, the notation being made at the time the certification is made, while the record is open before me, and later when the advice slip from the Secretary of the State in which the applicant becomes registered is received, a check is inserted, which is the end of the matter. This final check is relatively unimportant.



THE BOARD OF PHARMACY OF VIRGINIA

Record of Applications for Registered Assistant and Registered Pharmacist.

APPLICATION 1000 NAME Doe, John.

ADDRESS Richmond Va. 1300 E 7th St.

EXAMINATION	Date	Practical	Pharmacy	Materia Medica	Chemistry	Physics	General Average
PHARMACIST 6-9-12		78	80	77	75	65	75

Certificate for Reciprocity in State of N. C. Date 2-2-'14

Certificate for Reciprocity in State of Md. Date 2-3-'19

Certificate for Reciprocity in State of W. Va. Date 3-2-'21

Graduation Date June 1, 1912 School or College Med. Col. of Va.

Experience 3 yrs 7 mo.

Remitted X Registered 6-12-12

Record form for applicants for reciprocal registration.

While all States do not keep records in the shape in which ours appear, all do have some sort of record which would permit an overprint notation similar to the one which we use. This record is useful from time to time. It shows at a glance the men who are showing a tendency to become roamers. It enables us to be in a position to state that any given applicant became registered in such and such a State at a given date, and in another State at a later date, and so on. It is some satisfaction to us to have this information before us and very little trouble to keep it in shape. We commend it to your consideration.

GENERAL NEWS ITEMS.

An analytical laboratory, under the supervision of trained chemists, has been established by the Oregon Board of Pharmacy in the Pharmacy Building of the Oregon Agricultural College at Corvallis.

The purpose of the laboratory, according to Frank S. Ward, Secretary of the Oregon Board, is to assist the druggists of the State in keeping their drugs up to the required strength.

Only samples submitted by Board officials or inspectors and officially sealed by them will be analyzed. Patent medicines will not be analyzed for formula seekers, nor will alcoholic beverages be tested for persons who wish to determine whether they are safe to drink. All commercial samples are excluded from tests; only products in use in medical practice will be given attention.

Board funds will equip and maintain the laboratory but the Oregon Agricultural College will loan the room and its equipment together with heat, light, water and janitor service. In return for this courtesy, the Director of the laboratory will be required to do some instruction work in the school.

Mr. Ward states that the reason for establishing the laboratory at the college is that the chemists and others will have access to some 70,000 volumes of scientific works in the library, the occasional use of special scientific apparatus, and contact with specialists in various branches. It is also planned to do research work in the laboratory.

Secretary F. W. Hancock of the North Carolina Board of Pharmacy personally visited **Secretary A. L. I. Winne** of the Virginia Board at Richmond a short time ago and secured information regarding the drug-store-permit system in use in the latter State. North Carolina recently enacted a drug-store-permit law which becomes effective January first and Secretary Hancock wants to start out with the right system. Mr. Winne gave him samples of the Virginia forms and explained how its system works.

While there, Mr. Hancock also visited the Medical College of Virginia School of Pharmacy and was particularly impressed by the practice drug store conducted under Prof. Roy Childrey's supervision.

Secretary H. E. Eaton of the Iowa Board writes, "Corn and Republicanism are still holding sway in Iowa regardless of pessimistic reports, and business is looking up."

Bob Eaton, son of the Iowa Secretary, recently acquired a wife (we have not heard the young lady's pre-nuptial name). The honeymoon was spent in Chicago.

A. W. Scott, a former member of the Colorado Board of Pharmacy, died September 24th at Fort Collins, Colo. He was a member of the Colorado Board for sixteen years, from 1895 to 1911, the longest period served by any member of the Board to date. For ten years of that time, he was President of the Board, for two years Treasurer, and for four years Secretary. For some five years previous to his death, he had been a sufferer from an incurable form of intestinal trouble. He was a member of the State Board of Health, since his retirement from the Pharmacy Board. Not only does Pharmacy lose a worthy worker in his passing but his home community mourns a man loved and respected by all.

STATE BOARD NEWS ITEMS.

Alabama.—The Board examined six applicants at Foley on October 18th.

The following officers were elected at a recent meeting: *President*, Hal E. Duncan; *Secretary*, W. E. Bingham; *Treasurer*, W. P. Thomason.

S. A. Williams of Troy recently was reappointed for another term by Governor Graves.

Reciprocal registration was granted during October to Mrs. Grady D. Watford, of Georgia and Corinne W. Buford, of Tennessee.

Colorado.—Reciprocal registration was granted at the September meeting to Paul J. Auxier of Nebraska; Taylor K. McCain and Rollie D. Slusher, both of Kansas; M. H. Burel, of Georgia; and Paul T. Van Antwerp, of Alabama.

Inspectors Clifford and Kemble have kept the Secretary busy issuing apprentice licenses and a form of temporary permit for reciprocal applicants. Since the recent amendment of the pharmacy law, a check-up is being made of all the drug stores, in order to see that every clerk is properly registered as required.

The report for the fiscal year ending July 2, 1927 just published shows 31 reciprocal applicants accepted during the year.

District of Columbia.—Fifty-five applicants appeared at the October quarterly examination, but the papers were not rated and grades assembled at the time this item goes to press.

Fourteen of the fifty-five candidates taking the October examination were successful and registered pharmacist certificates have been issued to them.

The following were licensed by reciprocity—Howard R. Sewell, of Delaware; Lee E. Wallace,

of Illinois; Charles Blechman and Robert L. Paxson, both of Maryland; Ernest N. Dickinson, of Massachusetts; Albert Fisher of Rhode Island; William P. Rogers, Jr., of Tennessee and William P. Riggins of Virginia.

Illinois.—Reciprocal registration was granted to the following on September 7th: Clement S. Marezak, of Indiana; Imogene G. Shepherd, William N. Rorock, Eddie M. Wertz, Henry Lischer, Emmett S. Faught and Clarence Wierks, all of Iowa; Clifford F. Ward, of Kansas; Ralph E. DeVries, of Michigan; Irvin Hirsch, of Missouri; Albert R. Witt, of Nebraska; Max Lurie, of New Jersey; Maurice E. Wilson, of Ohio; C. Evans Edwards, of Pennsylvania; Gerald V. Crossley, of Tennessee; Harry J. Herman, of Wisconsin; and Louis E. Morris, of Washington.

Indiana.—W. A. Oren of the Indiana Board, former Secretary of the State association, was elected President of the National Association of Retail Druggists at the recent convention of that body in Kansas City.

During October, the following reciprocal applicants were registered: Abe Ruskin, of Arizona; R. W. Blanchard, of Maine and Clarence M. Buchanan, of Missouri.

Iowa.—Attorney General Fletcher recently gave an opinion to Secretary Eaton to the effect that retail sales of aspirin may be made only by registered pharmacists. The opinion held that aspirin is a drug under the Iowa law; that only pharmacists who are required to take an examination for license may sell drugs; therefore, only registered pharmacists may sell aspirin. The Board intends to fight for a Supreme Court ruling upholding the opinion, if necessary.

Reciprocal registration has recently been granted to Verne Miller, Harry W. Anderson, Timothy Connolly, George A. Saeger and Hubert A. Von Tersch, all of Nebraska; William D. White, of Kansas and Lester J. Frohs, of Illinois.

A new pharmacy college known as the Des Moines College of Pharmacy has been started in Des Moines. It is located at 1019 High Street, and is popularly referrred to as the college with five millionaires backing it. Eighty-two students are enrolled for the first semester, forty-three being freshmen.

E. O. Kagy is dean of the new school. He was formerly dean of the Des Moines University, College of Pharmacy, and is well known. Carl Weeks is President of the board of directors, and Frank C. Waterbury and L. H. Chamberlain are among the Vice-Presidents of the institution.

Kansas.—The examinations at Manhattan in August resulted in adding to the roster two registered pharmacists out of a class of eight taking the examination and two assistant pharmacists out of ten applying for that form of license.

Reciprocal registration has recently been granted to Leroy B. Gliddon, of Indiana, Raymond R. Stonebraker and Othello M. Cole, both of Missouri, and Jesse O. Yaryan, of Utah.

Kentucky.—At the meeting of the Kentucky Board of Pharmacy held in Ashland, October 11th and 12th, a class of eighteen applicants for registered pharmacist license was examined. Four of this number were successful. All of the candidates for assistant registration passed, three in number.

The following qualified for registration by reciprocity: Noah A. Bash and Delmon Potts, of Indiana; Green W. Dennis, of Missouri; Lee E. Eiler, Frank L. Scherra and Madeline R. G. Wald, all of Ohio; H. H. Morrison, of Georgia; Charles K. Noble, of Illinois and Lulu M. Seawell, of Tennessee.

The annual meeting of the Board was held recently and George D. Duncan, of Franklin, qualified as the newly appointed member of the Board to succeed J. Jeffries Goodwin, whose term expired. The following officers were elected for the ensuing year: *President*, Albert E. Ely; *Secretary*, J. W. Gayle; *Treasurer*, Linwood A. Brown; *Chairman Executive Committee*, William Votteler; *Attorney and Inspector*, Edward Bloomfield.

The next meeting of the Board will be held at Lexington, January 8, 1928.

Maine.—Eleven candidates were examined at the October meeting and six of this number succeeded in passing.

The next examination will be held at the State House, Augusta, on Wednesday, December 14th.

Maryland.—The Board examined forty candidates for full registration and eighteen for assistant's license at the October meeting held at the University of Maryland, Baltimore.

A business session was held on the night of October 12th at the Hotel Rennert, Baltimore, and reciprocal registration was granted to Max Greenblatt and Calona Dail Currier, both of Pennsylvania.

Examination results will be given in the next issue.

Michigan.—The Board of Pharmacy recently sent out the following notice:

"A campaign is being conducted by the Michigan Board of Pharmacy for the purpose of restricting the sale of drugs to licensed drug stores, under the immediate supervision of registered pharmacists.

"This campaign will be directed towards unregistered persons in licensed drug stores, as well as persons operating stores other than licensed drug stores.

"Acetylsalicylic Acid (aspirin) as well as some other drugs is being sold promiscuously throughout the State. This should not be, for the reason that it does not come within the accepted articles of common use and its sale, except under the immediate supervision of registered pharmacists in licensed drug stores, is prohibited by law."

Reciprocal registration was granted during October to Harold O. Boothe, of Delaware; Louis Levenson, of Ohio; Edwin H. Blayney of West Virginia.

Minnesota.—The names of twenty-two registered pharmacists and seventeen assistants have been added to the Minnesota roll as a result of the October examination.

The following reciprocal applicants were also accepted: Alfred C. Bischof, Henry T. Rice, and A. S. Sigurdson, of North Dakota; Anton W. Brunner, of Wisconsin; William H. Gericke, of South Dakota; James A. Pierce and Al F. Scheibel, of Iowa.

Missouri.—Twenty-four registered pharmacists have been added to the roster as well as twenty-one assistants, as a result of the September examinations at St. Joseph.

The following applicants were recently registered by reciprocity: Kenneth B. Coger and Robert L. Eblen, of Arkansas; Keith Wilson, Harold E. Wolford and William H. MacLaren of Kansas; Armand Dellande, of Louisiana.

New Jersey.—Twenty-four candidates for registered pharmacist license and sixteen candidates for assistant license took the July examination in New Jersey.

Reciprocal registration was granted recently to Siegfried Hirsch, of Illinois; Carl W. Schoenan and Charles A. Buohl, of Pennsylvania.

New York.—At a recent Board meeting a committee was appointed to study the possibility of the New York Board affiliating with the N. A. B. P.

North Carolina.—The next meeting of the Board of Pharmacy for the examination of candidates for license to practice, either as pharmacists or assistant pharmacists, will be held at Chapel Hill, N. C., Tuesday, November 22, 1927, at 9:00 o'clock A.M.

For blanks or information in regard to the examination write F. W. Hancock, *Secretary-Treasurer*, Oxford, N. C.

North Dakota.—Nothing new has happened in the controversy between the governor and the State association, which started when the governor appointed a personal friend to the Board of Pharmacy instead of heeding the list of the State association, as the law provides. To date, the Board has not recognized the governor's appointee. The State association is hoping that the matter will be brought to the courts and a definite decision be given.

Ohio.—Reciprocal registration was granted to the following at the October examination: Harold H. Keener and Edward P. McCarthy, of Indiana; George H. Schuette and Henry W. Reinwald, of Pennsylvania; Kenneth G. Clemens and Edgar F. Beecham, of Tennessee and George Conway McLean, of West Virginia.

Results of the October examination will be published in the next issue.

South Dakota.—A. R. Williams of Aberdeen has been elected President of the Board. L. E. Highley, the retiring President, whose term on the Board also expired, has been re-appointed as a member.

Reciprocal registration was granted to John F. Gilman, of Massachusetts, on October 12th.

Texas.—The Board examined 139 applicants at the September examination in Ft. Worth.

As one of the applicants was a young Mexican who could neither read nor write English, Ed. S. Russell, a Board member, acted as interpreter. Mr. Russell owns a pharmacy at Laredo and 80 per cent of his customers can speak only Spanish. Another member of the Board, Paul D. Carroll, lives in Texarkana, just 800 miles from Laredo. Good business for the railroads whenever there is a Board meeting.

The next meeting of the Texas Board of Pharmacy will be held in San Antonio on the third Tuesday in January 1928.

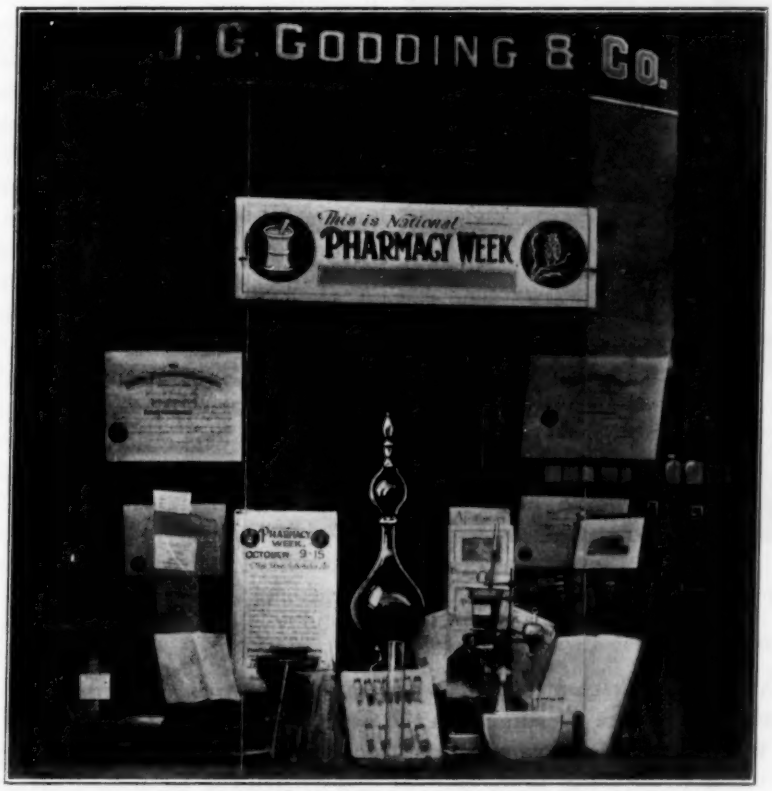
Reciprocal registration has recently been granted to the following: Williard B. Simmons, Dewey C. Phillips and Oliver H. Doss, all of Arkansas; Guyton R. Quillan and Robert J. Marsh, of Georgia; Claude E. Adamson, of Kansas; Berton E. Daniel and Francis J. Halphen, of Louisiana; Coy C. Hawkins and George H. Moss, of Oklahoma and Warren F. Cretney, of Wyoming.

Virginia.—An examination meeting of the Board was held Tuesday and Wednesday, November 15th and 16th at the Medical College of Virginia, Twelfth and Clay Sts., Richmond. Results not as yet available.

Wisconsin.—Out of 99 candidates taking the October examination, 53 were granted registration as pharmacists.

The next meeting will be held in Madison, Monday, January 16, 1928. All applications must be in the hands of the Secretary on or before January 5, 1928.

Under the provisions of the new pharmacy law, all drug stores are required to secure a permit for legal operation. Applications for these permits will be mailed to all drug store owners by the Secretary of the Board soon. A penalty of not to exceed fifty dollars will be imposed for failure to observe the requirements of this provision.



PHARMACY WEEK WINDOW OF JOHN G. GODDING & CO.

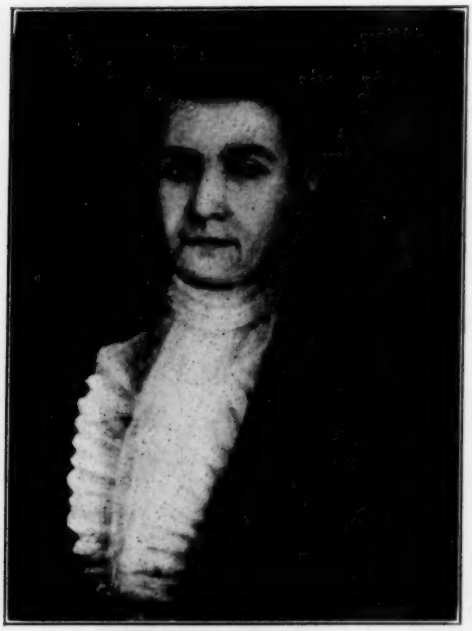
Former President of the A. Ph. A. John G. Godding exhibited his interest in "Pharmacy Week" in above window of his pharmacy. The open book at the right is the first Prescription Book of the pharmacy. Among the drug journals will be found that of the Association; the certificates show that Mr. Godding is a Life Member of the A. Ph. A., that he is an alumnus of the Massachusetts College of Pharmacy and that the Doctor's degree in Pharmacy was conferred on him by his *Alma Mater*. The Globe has a history, having been found after a search of two years in a small New Nampshire town. Most of the window tells its own story and Mr. Godding reports that many favorable comments were made regarding it.

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

DR. WILLIAM BROWN, PHYSICIAN-GENERAL TO THE AMERICAN ARMY.*

BY HIS GREAT 3RD GRAND-DAUGHTER, BESSIE WILMARTH GAHN.

In the churchyard of old Pohick Church a few miles south of Alexandria, Virginia, on the road to Fredericksburg, is a modest tombstone marked with the name of William Brown who was born, in 1748, in Haddingtonshire, Scotland. In that country, the family estates had been bequeathed by William's father to Gustavus, William's older brother. In America, the old home at Rose Hill was in the possession of Dr. Gustavus Richard, whose mother was the second wife of Dr. Gustavus Brown. Therefore, upon William's graduation from Edinburgh (as Doctor of Medicine) he settled and began medical practice in Alexandria, Virginia, where he married his cousin, Catherine Scott. He soon attained a high professional rank, and became intimate with many of the leading men of the day, among whom were Washington, Jefferson, Madison, Dr. Hosack and others.



WILLIAM BROWN, M.D.[1]
Author of first American Military Pharmacopœia.
(The Lititz Pharmacopœia.)

Upon the outbreak of the War of Independence, Dr. Brown left his practice and entered the service of the Colonies as Surgeon of the Second Virginia Regiment (Colonel Woolford's), raised in 1775. From September 19 to December 1, 1776, he served as Assistant Surgeon of the Flying Camp. On May 13, 1777, he was elected by the Continental Congress to be Surgeon General of the Middle Department (between the Hudson and the Potomac rivers) to superintend the practice of surgery in the Army hospitals. In January 1778, Dr. Brown was placed in charge of all the Continental Army hospitals in Lititz, Pa., and its vicinity. By this time, 1778, he had written the famous "Pharmacopœia

* This sketch, largely a reprint from the *Military Surgeon*, August 1926, was presented by Lyman F. Kebler to the Section on Historical Pharmacy, together with other data; he also had a photo made of an oil painting of Dr. Brown, for the Historian, and later, will prepare a more extended article for publication in the JOURNAL. It is printed at this time for record; Col. J. R. Keane, the Army Medical museum, the author and Dr. Kebler are entitled to credit for the contribution and the Historian thanks them.

[1] This photograph was taken from a life-size painting by Miss Alce Swann, who painted it from a miniature ivory painting. Artist unknown.

for the Use of Army Hospitals." This was the first American pharmacopœia. A cherished copy is to be found in the Library of Congress.

On February 7, 1778, General Brown was promoted by the Continental Congress to the office of Physician-General to superintend the "Practice of physic" in the Army Hospital of the Middle Department. Though but a young man, he held this office for over two years during the most critical period of the Revolution. A firm patriot, he gave his services to his country at great personal sacrifice. Up to that time, the Continental Congress had been able to make but few provisions for the maintenance of the Medical Department of the Army, causing the duties of the Physician-General and his subordinates to be very arduous; and it was largely due to the "personal attention and private influence" of Dr. Brown that the sick and wounded received medical treatment. On July 21, 1780, he resigned and returned to private practice in Alexandria, Va. By resigning, in 1778, his commission as Regimental Surgeon with the Virginia troops, in order to accept appointment by the Continental Congress, as Physician-General, Dr. Brown forfeited his right to pay in bounty-lands from the State of Virginia; but so highly were his services esteemed that the General Assembly made an exception in his case, and in October 1782, decreed that he be granted a bounty of 6000 acres of land in the State of Virginia. This is recorded in the Virginia Land Office at Richmond.

General Brown was a charter member of the Society of Cincinnati, which was formed upon the close of the Revolution by officers of the Continental Army and the French Legion.

Upon his death, December 20, 1792, General William Brown was quietly buried at "Preston" the estate of his kinsmen, the Alexanders, in Fairfax County, Va. In 1921, the land at Preston was purchased from descendants of the Alexanders by the Pennsylvania Railroad, and all the seventy-five bodies interred therein were transferred to the old cemetery at Pohick. It is here, therefore, that lie the remains of this great man, who took so large a part in the making of our country.

Concerning the grant of land to Dr. William Brown, for services in the Revolution, the Register of the Land Office, Richmond, Va., states:

"I find William Brown of record as having received Military certificate for 6000 acres of land for services as Regimental Surgeon for three years, which warrant was issued the 2nd day of June 1783, and of record in *Book No. 1*, page 145.

"I also find grants to William Brown for twelve hundred and one hundred acres for and in consideration of the above-mentioned warrant, situated in the forks of the Cumberland and Ohio Rivers (no County mentioned in either of the grants) and dated 10th day of May 1786, and of record in *Grant Book No. X*, pages 50 and 52."

EDITOR'S NOTE: A picture of the Moravian Brother's House, where the "Lititz Pharmacopœia" was prepared by Dr. Brown, is printed in JOURNAL A. PH. A. for 1920, p. 1132.

DECREE PROHIBITING AMERICAN PURCHASE REVOKED BY MEXICO.

The decree of the President of Mexico, directing that government officials abstain from purchasing supplies in the United States has been revoked by a subsequent executive order dated October 28th. The previous decree did not prevent government officers from purchasing American goods in Mexico but only American goods from the U. S. The new decree authorizing government departments to import from the U. S. or any other country necessary commodities, provided they cannot be acquired in Mexico.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council." —Part of Chapter VI, Article VI of the By-Laws.

ARTICLE III of Chapter VII reads: "The objects and aims of local branches of this Association shall be the same as set forth in ARTICLE I of the Constitution of this body, *and the acts of local branches shall in no way commit or bind this Association, and can only serve as recommendations to it.* And no local branch shall enact any article of Constitution or By-Law to conflict with the Constitution or By-Laws of this Association."

ARTICLE IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meetings of the Local Branches shall be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly and manuscript should be signed by the reporter.

BALTIMORE.

The first meeting of the Baltimore Branch of the A. PH. A. for 1927–28 was held at the Emerson Hotel on October 18, 1927, 8:15 P.M., with President L. M. Kantner in the chair.

The meeting was devoted to comprehensive reports of the national conventions of the AMERICAN PHARMACEUTICAL ASSOCIATION in St. Louis and the National Association of Retail Druggists, in Kansas City.

E. G. Eberle gave a résumé of the General Sessions of the A. PH. A., including the address of President T. J. Bradley; reports of the Secretary, of the Treasurer and of the Headquarters Building Campaign Committee; the address of Dr. James H. Beal; the effective work of the Pharmacy Week Committee; the resolutions passed by the House of Delegates and at the General Sessions; the bestowing of the N. F. Honorarium on Prof. Wilbur L. Scoville and the awarding of the Ebert Prize to Dr. L. W. Rowe; concluding with the nominees for the officers of the A. PH. A. for 1927–28.

He also presented some exhibits of historical interest, including the Constitution of the A. PH. A. with original signatures; and scrapbooks showing newspaper clippings of early A. PH. A. meetings.

Dr. Lloyd N. Richardson of Bel Air, Md. gave an outline of the proceedings of the House of Delegates, to which he was a delegate from the Baltimore Branch of the A. PH. A., calling particular attention to the large number of delegates responding from the State associations, the local branches, the sections of the A. PH. A. and the national associations. He outlined the address of Chairman Jacob Diner. He also told of the many discussions and subsequent resolutions concerning partial formula disclosure legislation; the opening of new drug stores in neighborhoods that are being adequately served; the requested exemption from the provisions of the Harrison Law of codeine and its salts, apomorphine and stypticin; and the desire for a regulation which will permit pharmacists to fill telephoned narcotic prescriptions under certain conditions.

Dr. John C. Krantz, Jr., who was the presiding officer of the Scientific Section, reported the wonderful responses to requests for papers for this section, fifty-one papers having been received for inclusion in the program, especially commenting on some of the scientific papers presented by the local members. He concluded with the names of the new officers for 1927–28.

Dr. R. L. Swain reported on the sessions of the National Association of Boards of Pharmacy, especially noting the work accomplished by the Committees on Education, and on Legislation; and the good results obtained from the District Meetings of the representatives of the Boards of Pharmacy and the Schools of Pharmacy in the respective districts.

Dr. A. G. DuMez summarized the proceedings of the sessions of the American Association of Colleges of Pharmacy, stating that representatives from 46 of the 52 member colleges were present, and that very satis-

factory Teachers' Conferences (Pharmacy, Chemistry and Botany and Materia Medica) were held by these representatives at the beginning of the session. He gave an outline of the reports of the Syllabus Committee, of the Committee on Higher Educational Standards, and of the Committee to Study the Question of Fixing Date for Adoption of Minimum Four-Year Course; stating that this date would most likely be named as July 1, 1932.

Dr. Charles L. Meyer reported that the meeting of the National Association of Retail Druggists in Kansas City was a most enjoyable and successful one. He commented on the address of President Samuel C. Davis, and on the comprehensive report of the Executive Committee. He also told of the hopeful, enthusiastic address of Congressman Clyde Kelly of Pennsylvania, and the kindly coöperation evidenced by Federal Commissioner of Prohibition, Dr. J. M. Doran.

Despite a heavy downpour of rain at the time of the Branch Meeting, the attendance was unusually large, and included Drs. J. C. Munch, Wm. T. McClosky, Nicholas G. Barbella and M. T. Thompson, pharmacologists from the Bureau of Chemistry, Washington, D. C.

Plans are under way for a special speaker at a dinner meeting for November.

B. OLIVE COLE, *Secretary.*

CHICAGO.

The 168th meeting of the Chicago Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held Friday evening, October 14th.

President Gathercoal presented the report of the Booster Committee for the work during the headquarters building campaign. A motion was passed to publish the report and send to all contributors to the campaign.

An announcement of the program for the coming year followed and the recommendation was made and approved to change the time of meetings to the third Tuesday of the month.

A motion was passed to publish the program with the list of members and an invitation to become a member of the Association. This literature is to be sent to all members and prospective members.

Dean Day of the Illinois School of Pharmacy gave a report on the work of the Association. He reported the Recipe Book as ready for the press, and also reviewed the splendid address of Dr. J. H. Beal at the St. Louis Convention.

Mention was made of the need for an index book for the A. PH. A. YEAR BOOK and a Committee was appointed to investigate the situation.

Secretary S. C. Henry, of the N. A. R. D., gave a review of the work and accomplishments of that organization, and spoke of the closer coöperation with the A. PH. A. He discussed the subject of fair trade legislation and other activities.

Mr. Kolb gave a brief report of the work of the Chicago Retail Druggists' Association in their effort to eliminate unfair trade problems.

A review of the proceedings of the Illinois Pharmaceutical Association was presented by Messrs. Kolb and Gray.

Seward Owen reported on the activities of the Plant Science Seminar held at St. Louis.

S. W. MORRISON, *Secretary.*

DETROIT.

The first meeting of the Detroit Branch of the A. PH. A. for the ensuing year was held Thursday, October 20, 1927, in the Y. M. C. A. Building.

An excellent dinner was served prior to the meeting which was called to order by President Sheeler at 7:45 P.M. After the President outlined the plans for the coming year, the minutes of the previous meeting held in Ann Arbor were read by the Secretary and approved. R. T. Lakey made a report for the Committee on Program. F. F. Ingram reported on the financial condition of the treasury. W. A. Hall was reappointed chairman of the Membership Committee.

Treasurer Ingram suggested that the Liberty Bond held by the Branch, which had been called in, be exchanged for other interest-bearing bonds. A motion to that effect was made by J. H. Webster and seconded by W. A. Hall and approved by vote.

President Wheeler congratulated the students on their fine turnout and encouraged the younger members to take an active part in the Branch meetings.

The speakers of the evening were J. H. Webster and L. A. Seltzer. The latter spoke on the "Close Relationship of State Associations and the A. PH. A." and stressed the necessity of insuring greater interest in pharmacy. He said the A. PH. A. was responsible for the organization of State associations and that the latter should devote more attention to the science of pharmacy. Mr. Webster

reported on the Convention of the N. A. R. D. held in Kansas City. He said that the A. PH. A. supplies the backbone to pharmacy and the N. A. R. D. supported these efforts in various ways. He complimented Dr. Beal's work for the Department of Pharmacy and his services in behalf of the Standards. Mr. Webster advocated the use of the new edition of the booklet on the U. S. P. and N. F. which had been revised by a Committee of pharmacists and physicians in Detroit. He also referred to the progress made by the Capper-Kelly Bill and urged the members to aid in its promotion.

R. T. Lakey reported on the Convention of the A. A. C. P. He said that just as the A. PH. A. supplies the nerve center and the N. A. R. D. the nutrition, so the colleges of Pharmacy supply the soul of pharmacy. He referred to the progress made toward the four-year course in pharmacy and remarked that some of the colleges had already made such a course effective.

A general discussion followed during which Mr. Ingram suggested the distribution of the U. S. P. and N. F. booklet to the college of pharmacy and the medical students. The suggestion was adopted.

J. H. Webster, Jr., spoke of the Prescott Club which had been organized by the students of pharmacy at the University of Michigan and their desire to contribute to pharmacy as a profession and as a business. He asked for the advice and encouragement of the Detroit Branch.

Mr. Ingram was pleased with the remarks by Mr. Webster and asked that the members of the Branch encourage the students and lend their aid whenever possible in the work which is to be done by the Prescott Club.

Dean Lakey of the Detroit City College of Pharmacy told of the plans under way at the College of Pharmacy to contribute to this work. Mr. Seltzer remarked that his plan of stimulating the interest of the students in the A. PH. A. work had surpassed his expectations and he suggested that all the students join the Prescott Club to work out its problem.

Prof. Stocking said that this organization embodied the ideas of the students and that it was worthy of praise and support.

BERNARD A. BIALK, *Secretary.*

PHILADELPHIA.

One of the most interesting and well attended meetings ever held by the Philadelphia Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held at the P. A. R. D. building, 2017 Spring Garden St., Tuesday, October 11th. This meeting was unique in a way and accordingly everyone was anxious to hear the program, a travelogue, in which several of our Branch members who have recently traveled over various countries participated.

Prof. E. Fullerton Cook was the first one on the program to speak. He has just returned from a year's stay at the University of Bern, Switzerland, and he gave a most interesting account of his experiences both in Switzerland and the many other countries which he visited, including England, Germany, Holland, Italy and France. W. L. Cliffe then gave the interesting points in an extensive trip which he recently enjoyed through Germany, Jugo Slavia, Holland, Austria and Belgium. Prof. LaWall temporarily carried the audience back to North America on a trip with him by boat from Los Angeles through the Panama Canal and home again. We were next given a treat to a Griffith movie. We joined Prof. Griffith and his family on the boat at New York and followed them through England, Wales, France and finally returned to New York. Prof. Griffith had taken movies of his entire trip with one of the new movie cameras and thus we were able to see the beauties of his home country, Wales, and his home folk, in such a way as we could not have done by word of mouth. It was truly a most interesting Griffith production and it was interspersed here and there with those characteristic Griffith remarks and comments which made it, indeed, most entertaining. A rising vote of thanks was given to the several contributors.

The November meeting was postponed from the 8th to the 15th, inasmuch as the P. A. R. D. banquet is to be held on the 8th. The general program for the year was outlined and the Secretary was called upon to give in a few words the part played by the Philadelphia Branch in the Campaign for the National Headquarters building site.

G. R. Isenberg, Ebensburg, Pa., A. Ward and F. R. Greenbaum, Philadelphia, were accepted as Branch members pending favorable action by the parent ASSOCIATION. The usual dinner was held before the meeting and was very well attended.

ADLEY B. NICHOLS, *Secretary.*

THE SECTIONS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

ABSTRACT OF THE MINUTES OF THE SESSIONS HELD IN ST. LOUIS, MO., AUGUST 22–27, 1927.

(See also summary report of the final sessions of the House of Delegates, printed in October JOURNAL, p. 996.)

SCIENTIFIC SECTION.

The first session of the Scientific Section, A. PH. A., was convened at 9:15 A.M., August 25th, by Chairman John C. Krantz, Jr. First Vice-Chairman L. W. Rowe presided during the reading of the Chairman's address.

THE CHAIRMAN'S ADDRESS.

BY JOHN C. KRANTZ, JR.

The officers of the Scientific Section have experienced a most gratifying year in the work of this organization. The principal duty, that of preparing a program for this meeting, has been made a pleasure indeed, due to the ready responses of the members to present their papers representing their scientific researches at this meeting. The Chairman wishes to take this occasion to thank the authors of the papers on the program of this Section and welcome all visitors and new members, urging that we may make the floor at this meeting an open forum in the discussion of the papers presented.

PHARMACEUTICAL RESEARCH.

Your Chairman in his address upon this occasion has taken the liberty to bring before you some of the outstanding investigations along the lines of pharmaceutical research which have been carried on during the past year, in order that these might serve as a stimulus for the accomplishment of greater results in the future.

The past year has witnessed the purification of crystalline insulin. Prof. Abel's researches in endocrinology have been epoch-making in importance. He and his associates have succeeded in repeatedly precipitating crystalline insulin and they have obtained the empirical formula for the compound containing 1 labile sulphur atom, $C_{45}H_{69}O_{14}N_{11}S_2.3H_2O$. The crude insulin powder contains 8 units per mg., whereas Abel's pure crystalline contains 40 units per mg.

It is also worthy of special notice that during the past year certain European investigators have produced synthetic compounds possessing hypoglycemic activity. Foremost among these is synthalin, a guanidine derivative, which when taken by the mouth produces the characteristic action of insulin. In the mind of your Chairman, these successes in this field stand out as a challenge to us as pharmaceutical investigators to push further these projects so that the name of some pharmacist may be outstanding in the obtaining of our ultimate knowledge regarding this important hormone.

Further, in the laboratory of Prof. Abel, Dr. Tainter, who published an article in our JOURNAL on the relationship of the potency of digitalis infusion and its p_H, is continuing the study of the pituitary principle in the hope of finally getting the active principle of this substance in a chemically pure form. The researches in an effort to isolate the hormone of the liver are ever increasing and, especially, since the liver diet has been found so efficacious in the treatment of pernicious anemia. Heparine, the anti-blood coagulant isolated from the liver by Dr. Howell, has been purified to such an extent that 1 mg. prevents the clotting of 50 cc. of cat's blood.

Fullerton and Heyl reported in our JOURNAL a chemical examination of the ovarian residue in which they announce that the water and saline soluble proteins of the ovary contain tyrosine, lysine, arginine, tryptophane, cystine, and mono-amino acids. Work of these investigators has been substantiated in many different laboratories and in many of the commercial houses efforts are being made to prepare more highly purified ovarian products.

The clinical investigations of Dr. K. K. Chen upon the alkaloid ephedrine which has

resulted in its wide use in the hands of general medical practitioners should be inspiring to all those whose investigations have carried them into the field of phytochemistry.

Chen has shown ephedrine to be an excellent substitute for adrenalin in asthmatic spasm and it has the great advantage that it can be taken by mouth rather than hypodermically.

Terry's comprehensive investigation of *Ephedra Nevadensis* is of special importance; for this investigator has shown that this variety of the ephedrine plant cannot be used in medicine as the alkaloid ephedrine is not present in it.

The work of Beal and his students on the quantitative estimation of anthraquinone bodies in cathartic drugs has thrown special light upon the constitution of some of our most important pharmacopœial cathartics and undoubtedly the next Pharmacopœia will be enriched by the work of these able pioneers in this field.

Macht and his associates have studied the effect of various radiations of many of the pharmacopœial products and their investigations on the effect of polarized light on certain medicinals is undoubtedly of far-reaching importance. These investigators have shown that in a great many instances polarized light causes the more rapid deterioration of certain drugs than ordinary light of equal intensity.

The assay of digitalis by the phytopharmacological method is familiar to most of the audience. It is of special interest to know that this plant test object, namely, the *lupinus albus*, has been used by Macht in the diagnosis of pernicious anemia.

In the field of chemotherapy we find that continual efforts are being made to prepare germicidal dyes containing the atoms of bismuth and antimony. Many alkyl resorcinols and phenols have been prepared and their toxicity and bactericidal activity studied. Comprehensive work on the relationship between structure and bactericidal activity has been carried out with exceedingly interesting results. It is of interest to note that bactericidal properties are affected markedly by conditions, such as temperature and the presence of chemical agents that are not usually considered as essential on the one hand, or on the other as deleterious or inhibitory to the activity of a bactericide. In this field a survey of this kind would certainly be incomplete without special reference to the excellent work of Dr. Roger Adams who succeeded in synthesizing the acids of chaulmoogric oil and obtaining these in a pure form.

This brief review of the research in pharmacy and its allied sciences is presented to this Section in hopes that it may serve as a stimulus for greater things from the members of this Section in the future.

RECOMMENDATION.

Your Chairman has had the privilege of serving simultaneously this Section and the National Conference on Pharmaceutical Research as Secretary and Treasurer, and it has been his observation that these two organizations whose purposes seem to be the promulgation of scientific pharmacy should in some way join their forces and establish a means of coöperation between the two. With this in mind, the Chairman recommends that a committee of three be appointed to meet with the officers of the National Conference on Pharmaceutical Research in order to provide some means for a closer coöperation between these two bodies.

OBITUARY.

It has indeed been a great loss to the Scientific Section during the past year that our friend and former Chairman, Dr. Engelhardt, has died. Dr. Engelhardt's work in the Scientific Section has been inspiring to those who have had the pleasure of knowing him, and it is hoped that his kindly spirit and his indefatigable efforts to advance the profession of pharmacy may live in our memory forever.

CONCLUSION.

In conclusion, your Chairman wishes to express his appreciation of the honor which this Section has conferred upon him in permitting him to serve in this capacity during the past year.

First Vice-Chairman L. W. Rowe appointed Messrs. J. B. Burt, L. E. Warren and M. Bye to serve as members of the Committee on Chairman's Address.

SECRETARY'S REPORT.

BY PAUL S. PITTENGER.

The work of the Secretary during the past year consisted of the usual routine of mailing appeals to research workers for papers, writing to the editors of the various Pharmaceutical Journals asking that they print notices of our "Appeal for Papers," acknowledging the papers received, arrangement of the program and the necessary correspondence incidental to the above.

In this connection your Secretary, in accordance with the usual procedure, added to his mailing list the names of all additional authors who had presented papers at the preceding meeting.

The attached appeal for papers was forwarded to the 325 men whose names comprised the above mailing list. In addition the attached letter was forwarded to the editors of 30 Pharmaceutical Journals. The majority of the journals complied with the request and published the appeal either in its entirety or in abstract.

In addition to the above the Secretary has handled 110 personal letters in reference to papers and the arrangement of the program.

The result has been gratifying as we have 54 papers to be presented at our sessions. The papers are sufficiently varied as to text to make our meetings of interest to all the members of the ASSOCIATION.

Complying with the promise made in my appeal for abstracts of papers, we have mimeographed 150 sets of 11 pages each of "Abstracts of some of the interesting papers which will be read at the Sessions of the Scientific Section of the AMERICAN PHARMACEUTICAL ASSOCIATION 1927." These mimeographed pamphlets include all of the abstracts submitted by the authors of papers.

LETTER TO PHARMACEUTICAL PUBLICATIONS.

May 31, 1927.

Dear Editor:

The Officers of the Scientific Section of the AMERICAN PHARMACEUTICAL ASSOCIATION would greatly appreciate it if you would print the enclosed notice to Pharmaceutical Research workers.

It is our hope that this appeal or an abstract of it will be inserted in a conspicuous place in your JOURNAL in the June or July issue.

As it is our ambition to make the meetings of the Scientific Section bigger, better and more instructive than they have ever been, we trust that we may have your coöperation in this matter.

Thanking you for past favors, I remain, etc.

(Signed) P. S. PITTENGER, *Secretary.*

NOTICE TO PROSPECTIVE CONTRIBUTORS.

Baltimore, Md., May 31, 1927.

Dear Sir:

The Seventy-Fifth Annual Meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION will be held at the Hotel Coronado in St. Louis, Mo., during the week of August 22, 1927.

This is the Diamond Anniversary Meeting and the officers of the ASSOCIATION are planning for the biggest and best convention we have ever had.

Likewise, your officers of the *Scientific Section* are laying plans for bigger, better, more instructive and more interesting sessions than we have ever had before.

In order to do this, however, it is necessary that we have your coöperation and assistance. We are depending upon you for at least one paper upon any subject coming within the scope of your section.

To be assured a prominent place on the program send the Secretary the title of your paper as soon as possible.

There is no limit as to the length of papers presented but in order that all may have an *equal opportunity* to read their papers, your attention is called to the fact that the "By-Laws" of the Section limit the time allowed for the presentation of each paper to ten minutes, with an additional *five minutes* for discussion.

These rules will be strictly adhered to. Therefore, if your paper is too lengthy to be read in the time allotted, kindly be prepared to present it in abstract.

Owing to the large number of papers to be presented within a limited time it will be impossible to include illustrated talks in the program.

This ruling, however, does not preclude the use of lantern slides *to illustrate a scientific paper*, so long as the paper can be presented within the allotted time.

All titles of papers, and an abstract (not over 250 words) of the same must be in the hands of the Secretary by July 1st.

Papers received after July 1st cannot be assured of a place on the program and presentation can only be permitted as time may allow.

The program must be completed by this date in order to have it included in the JOURNAL the month before the meeting.

The value of our meeting depends as much, and sometimes more, upon the character of the discussions as upon the papers themselves.

We are, therefore, again asking each author to help us enhance the value of the discussion by submitting to the Secretary an abstract of 250 words or less of each paper to be presented.

The Secretary will mimeograph these abstracts and distribute them to the section members in order that they can determine the papers in which they are most interested and come to the section-meetings prepared to intelligently discuss them.

Trusting that you will coöperate with us in making the sessions of scientific section *a big success* by contributing at least one paper this year and that we may receive the *title and abstract* of the same before July 1st, we remain

(Signed) JOHN C. KRANTZ, JR., *Chairman*,
PAUL S. PITTENGER, *Secretary*.

On motion of J. C. Peacock, duly seconded, the Secretary's Report was received.

Chairman Krantz appointed as members of the Committee on Nominations, Messrs. Bibbins, Schwarz and Jenkins.

PAPERS.

(Abstracts of discussions of contributions will be printed with the papers and omitted in the minutes, unless some action requires prior publication.)

The following papers were read and discussed, presented with abstract or read by title:

"Notes on the Spectrum and Pharmacology of Chlorophyll," by Frederick Grill.

"The Trend in Internal Medicine," by Albert Schneider. He also made a verbal report on "Ozone in the Treatment of Mouth Infections and of Tuberculosis."

"Antivenin (*Nearctic Crotalidae*)," by J. C. Peacock.

"The Relationship of Chemical Structure to Pharmacological Action," by Charles W. Bauer.

"The Resistance of Rats to Repeated Doses of Aconitine," by J. C. Munch and G. S. Gittinger.

"The Lethal Dose of Aconitine to Rats," by J. C. Munch and G. S. Gittinger.

"Notes on Digitalin Standardization," by L. W. Rowe.

"Causes of Deterioration of Strophanthus Seed during Storage," by Elizabeth Pickering.

"Temperature Regulator," by Paul S. Pittenger; "Care of Animals for Biologic Assay," by Paul S. Pittenger.—The first paper named will be found in the October JOURNAL, p. 907.

"The Effect of Certain Defatting Solvents upon Stability of Fluidextract of Ergot," by J. C. Munch, G. S. Gittinger and E. W. Schwartze.

"Plant Chemistry: The Non-Volatile Constituents of Mentha Piperita," by H. A. Braun and Edward Kremers.

"A Chemical Study of Poison Star Anise," by S. Y. Chen and Edward Kremers.

"Cassia Red," by S. S. Chao and Edward Kremers.

"A Preliminary Chemical Study of the Fruits of Pittosporum Resiniferum," by A. J. Schwarz and Edward Kremers.

"An Investigation of Ginger and Its Preparations," by Joseph F. Clevenger.

A paper on "The Assay of Ephedra Vulgaris," by J. B. Williams, was presented by W. L. Scoville; also "The Assay of Phosphoric Acid," by F. A. Maurina.

A paper by J. A. Handy and L. F. Hoyt on "Dimethylphthalate and Other Phthalates."

A paper on "A Discussion of the Pharmacopœial Specifications for Cresol," by H. Ohaver was read by A. C. Taylor.

A paper on "Detection and Determination of Traces of Aluminum," by I. M. Kolthoff, was read by H. V. Arny.

Chairman H. V. Arny presented the report of the Committee on Pharmaceutical Research."—See page 878 in the September number, 1927, JOURNAL A. PH. A.

The first session of the Scientific Section was then adjourned.

SECOND SESSION.

The second session of the Scientific Section was convened at 8:20 P.M., August 25th, by Chairman Krantz. He stated that the order of the program had been changed so that the joint session with the Section on Practical Pharmacy and Dispensing would be held immediately following the adjournment of the Second Session.

The reading of papers was continued.

The first paper of the program was on "The Polarimetric and Dilution Methods for Estimation of Oil in Lemon Extract: A Comparison of Their Accuracy and the Effect of Temperature," by Charles V. Netz.

"The Analysis and Characterization of Neoarsphenamine," by Alfred E. Jurist and Walter G. Christiansen, was read by the latter.

"Changes in the Silver-Ion Concentration of Stored Solutions of Colloidal Silver Germicides," by R. B. Smith.

"p_H Determination in Alcohol Solutions and Values Obtained for Certain Tinctures," by R. B. Smith.

"Preparation of Reversible Colloids," by W. A. Lott, was read by Dr. Anderson.

"The Constants of Chloroform Liniment," by L. E. Warren.

The Second Session of the Scientific Section was then adjourned.

THIRD SESSION.

The third session of the Scientific Section was called to order at 2:15 o'clock, Friday, August 26th, by Chairman Krantz. The reading of papers was proceeded with in the following order:

"The Determination of Sugar, Uric Acid, Urea and Creatinine in One Cubic Centimeter of Blood;" "Epsom Salt of To-day," by Edward S. Rose.

"Apparatus for the Determination of Volatile Oils," by Joseph F. Clevenger.

"Optical Identification of Alkaloids," by George L. Keenan.—This paper is printed in the September JOURNAL A. PH. A., p. 837.—In discussing the latter paper J. C. Munch commended the method employed by the author.

A paper on "Medicinal Plants of Florida," by Ernst T. Stuhr, was read by title, the author not being present.—This is a dissertation presented to the graduate faculty of the University of Florida in partial fulfillment of work for the degree of Master of Science in Pharmacy.

Heber W. Youngken read a paper on "A Recent Adulterant for Viburnum Prunifolium" and also presented a summary of alcoholic extractions of this same drug carried out by Florin J. Amrhein.

The following papers were presented by title:

"The Effect of Sunlight on Citric Acid in the Presence of Ferric Salts," by Joseph B. Burt.

"Hydrogen-Ion Concentration," by A. L. Caldwell.

"Gold Compounds for Medicinal Use," by F. R. Greenbaum.

A paper by S. Arzoomonian on "Plasticity Measures on Milk of Magnesia" was read.

E. E. Swanson read a paper on "Standardization of Digitalis Preparations."

A paper on "The Effect of Various Compounds on the Rate of Development of Rancidity in Fats and Oils," by William J. Husa and Lydia M. Husa, was read by the former.

A paper by Charles V. Netz, on "A Method for the Quantitative Estimation of Sulphur Combined and as Sulphides in Potassa Sulphurata," was read by title.

W. L. Scoville presented a paper on "The Causes of Precipitation in Tinctures and Fluid-extracts."

A paper by R. Van Winkle on "Polymerization of Olefines," was read by W. G. Christiansen.

The Report of the Committee on Chairman's Address was presented, as follows:

REPORT OF COMMITTEE ON ADDRESS OF THE CHAIRMAN OF SCIENTIFIC SECTION.

The Committee has carefully considered the address of the Chairman, and believe the Chairman should be complimented on the very able, concise and complete report on the progress of pharmaceutical research made during the past year.

Particularly noteworthy were the careful and thorough explanations of several research problems, which should serve as inspiration for future work in the Scientific Section.

The Committee acquiesces in the recommendation that a committee of 3 be appointed to work with the officers of the National Conference on Pharmaceutical Research in order to provide some means for a closer coöperation between the two bodies.

(Signed) M. BYE,
L. E. WARREN,
F. F. BERG.

On motion of Heber W. Youngken, seconded by J. C. Munch, the report was received and adopted.

The report of the Committee on Nominations was presented by Chairman F. E. Bibbins, and adopted by vote, resulting in the election of the following officers for the ensuing year:

Chairman, L. W. Rowe; *First Vice-Chairman*, J. C. Munch; *Second Vice-Chairman*, F. J. Bacon; *Secretary*, P. S. Pittenger; *Delegate to the House of Delegates*, J. C. Krantz, Jr.

J. C. Munch moved that the officers of the Scientific Section be instructed to coöperate with the persons in charge of the arrangement of the program for 1928 and attempt to make arrangements whereby one day will be devoted entirely to the sessions of the Scientific Section, arranging for meetings in the morning and afternoon and evening; that the papers requiring lantern slides be presented at the night session and that the joint session with the Section on Practical Pharmacy and Dispensing be left for another day. The motion was duly seconded and after some discussion the motion was adopted.

L. W. ROWE.

Winner Ebert Prize for 1927.

During the discussion a suggestion embodied—that, as far as possible, conflict between the meeting times of the Scientific Section and the other Sections be avoided.

J. C. Munch moved that a request be transmitted to the Plant Science Seminar that a representative from that body present a brief abstract of their work and the papers considered during its sessions to the Scientific Section. This was seconded and the motion carried.

Heber W. Youngken moved a rising vote of thanks to the retiring officers which was adopted and the Section then adjourned.

JOINT SESSION, SCIENTIFIC SECTION AND SECTION ON PRACTICAL PHARMACY AND DISPENSING.

The Joint Session of the Scientific Section and the Section on Practical Pharmacy and Dispensing was called to order by Chairman Krantz of the Scientific Section at 9:00 P.M., August 25th. The first order of business was the report on the U. S. Pharmacopœia by Chairman E. Fullerton Cook.—It was read, discussed and accepted.

Chairman Adley B. Nichols of the Section on Practical Pharmacy and Dispensing introduced Dr. H. H. Rusby as the next speaker. He presented a paper "On Suggestions for Improvement in the Text of the Pharmacopœia with Special Reference to the Definition."—This was printed in the October JOURNAL A. PH. A., pp. 936–943.

The report of the Committee on National Formulary was called for. It was read by Chairman W. L. Scoville.—It will be found in the September JOURNAL A. PH. A., pp. 867–869.

Chairman Nichols announced that owing to the absence of Chairman J. Leon Lascoff of the Committee on Recipe Book and Editor Ivor Griffith a report on the A. PH. A. Recipe Book would not be made at this time. Also, owing to the absence of Dean Frederick J. Wulling, his paper on "The Effect of Under-Education upon Research in Pharmaceutical Science" would not be read at this time.

The Report of the Committee on Ebert Prize was read. The prize for this year was awarded to Dr. L. W. Rowe for his papers on "The Standardization of Digitalis and Strophanthus."—See PROCEEDINGS of the final session of the General Sessions, published in October JOURNAL A. PH. A., p. 979.

A motion, duly seconded, that the Joint Session adjourn—carried.

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

The first session of the Section on Practical Pharmacy and Dispensing was convened at 9:25 A.M., August 25th, by Chairman Adley B. Nichols. The first order of business was the reading of the Chairman's address, during the reading of which R. E. Terry presided; it follows:

THE CHAIRMAN'S ADDRESS.

BY ADLEY B. NICHOLS.

The By-Laws of this Section state that the chairman *may* present an annual address. I am highly tempted to take advantage of that word *may* and probably receive your wholehearted approval in not following the time-honored custom. On the other hand, a few words seem to be expected from the Chairman; I am a bit timid about breaking away from the beaten path and as I have a few thoughts which I feel might be presented here, I will ask your indulgence in presenting them. My remarks will be brief, so that we will not waste time which might be spent with profit on a discussion of some of the interesting papers to follow.

Our Secretary will probably report on the difficulty experienced in obtaining a suitable program for this Section. We are primarily concerned with questions relating to operative pharmacy, manufacturing and dispensing. The stores of to-day show the trend toward merchandizing—we find the wholesaler being called upon to supply not only fluidextracts and tinctures, but even lime water and simple syrup—this gives us the reason why papers of interest to this section are difficult to obtain. Several of the members of this Section have helped the officers in completing their program this year; for this we are very grateful and urge all members to bear this in mind and be on the lookout for papers at all times.

The Committee of Revision of the U. S. Pharmacopœia is organizing for research work on pharmacopœial problems, and Dr. H. V. Arny's annual census of research contains the names of hundreds of workers, many of whom are engaged in research on pharmaceutical problems of interest to our Section. I would suggest that the officers of this Section write to those engaged in research of interest to us, with the request that, if possible, they report the results of their work through this Section at the annual meeting. We would thus be assured of a number of papers and the discussions thereon would, undoubtedly, be most valuable.

"Pharmacy is an ancient and honorable profession" is an opening statement of Dr. Charters' Commonwealth Foundation report, and as we study the data contained therein and consider the countless facts which the pharmacist is supposed to have in his storehouse of knowledge, we are impressed that pharmacy is indeed "an honorable profession." LaWall's "Four Thousand Years of Pharmacy" with its wonderful story of pharmacy of the ages fills us with the deepest reverence for this ancient profession and inspires us to do our utmost to carry forward the work begun by the masters generations ago.

But there are to-day numerous causes for concern—concern as to what is to become of the old traditions, concern for the ideals laid down by the fathers of old, concern for this ancient and honorable profession.

As we study the Charters' Report, we cannot help but note that retail pharmacists are not, as formerly, manufacturing their pharmaceuticals; we find in the drug stores of our own respective communities all sorts and conditions under the designation and good-will of pharmacy. Unfortunately, we find those who do not want prescription business and openly say so; some,

who handle liquor with more or less indifference to law; those who prescribe for every ailment; those who have little feeling of professional dignity or service; those who are careless; those who do not make proper charges for professional work, thereby cheapening that service. In all, we find these groups doing almost as much to degrade our profession in the eyes of the public as we can do to uplift it. We must make an effort to improve or get rid of those who are degrading the good name of an "ancient and honorable profession." We have our honor systems in operation in our Colleges and we say that the honest man is as guilty as the rest if he sees dishonesty and does not attempt to stop it. Should we not place ourselves in the same position toward those who are not doing the honorable thing towards pharmacy? Whatever they do reflects on the profession as a whole, just as the doings of the few dishonorable in a class reflect discredit upon the entire class.

We have a great responsibility resting upon our shoulders in trying to instill into the younger generation the ideals of pharmacy as an honorable profession, ready to serve humanity and to give service beyond all else. This can be done through our Colleges to a certain extent, but is not the real training along this line dependent on the preceptor just as real fundamental training is dependent on the home? From his preceptor our young pharmacist obtains his first impressions, and if those impressions are not of the best, we cannot expect him to be very different. If the Colleges were able to select and pass judgment upon the stores its students were allowed to work in, we would be doing a splendid piece of work and accomplishing a great deal for our profession.

The public must be educated to recognize the real value of the pharmacist. True, we have our "National Pharmacy Week," established by a former Chairman of this Section, Robert J. Ruth, and we are very proud of the fact that this splendid achievement came through this Section, but what we need is "Pharmacy Week" carried into every week of the year. There are too many who borrow special apparatus for the window trim for the annual occasion in order to emphasize their professional importance, hiding under the mantle of pharmacy, only to utterly disregard it for the other fifty-one weeks of the year. This is the very idea so well illustrated, but in a different way, by Professor Olsen in the Department of Business Management in the July issue of the JOURNAL OF THE A. PH. A. His article, entitled "The Buy at Home Argument," shows what can be accomplished for a special occasion with a little effort, and how, after that occasion passes, the pharmacist slips back into the old rut once more. The Drug Trade Board of Public Information is doing splendid work, but we must have the daily and continued coöperation of the retailer who meets the public day after day, in order to properly educate it to our needs. Do you imagine, if the public really understood, it would expect or even allow the pharmacist to keep open from early until late—his hours often being twice the hours ordinarily allowed for a day's work? Wouldn't they recognize the fact that the pharmacist is human and should have his recreation and rest in order to prepare himself to properly safeguard and administer to his neighborhood? Wouldn't they be far more willing to pay a price for prescriptions and other items commensurate with the education and responsibility involved?

I have recently been managing a drug store opposite a million dollar apartment house operation; a few days ago there was an argument as to whether some painters were going to work for eleven or twelve dollars a day, and a seven or eight-hour day at that. Does the painter spend several years at college, does he have the welfare, nay, even the life of the community, in his hands?

Another situation which the poor pharmacist has to put up with arises through the avenue of the pharmaceutical manufacturer. Hundreds of specialties, prescriptions already compounded, are being detailed to physicians and many of these receive about one trial. Again referring to the Charters' Report we find that out of the 17,000 prescriptions calling for nearly 41,000 items, 692 different proprietaries are prescribed and 365 of these are prescribed once only, while another 117 are prescribed twice each. And the poor pharmacist has to keep these items on his shelf, most of them never to be used again, once they are opened. Encouraging the physician to buy direct, by offering special deals on, let us say, 50,000 capsules, is encouraging him to become a dispenser rather than a writer of prescriptions and of course this is a direct blow to the pharmacist.

There are many other features I would like to mention but our time is limited and I promised not to detain you long. I have no recommendations to make but I feel that we could very profitably set aside some time for discussing this general situation and possibly through that discussion arrive at some definite program. If we are to keep pharmacy as "an honorable profes-

sion," surely, it is up to us to do our utmost to correct some of these present-day evils that are threatening the very foundations of this 4000-year-old calling.

There being no recommendations in the address, the report was received for publication in the JOURNAL. The report of Secretary Charles V. Netz was read; it follows:

REPORT OF THE SECRETARY.

BY C. V. NETZ.

During the past year it has been my pleasure and profit to occupy the position as Secretary of this Section. Upon my election to this position, I anticipated a considerable demand upon my time by the duties of this office, and I was not disappointed. As the program slowly took form, it was necessary to neglect the lesser duties of the position for the more important.

I am greatly indebted to Chairman Adley B. Nichols for the direction and assistance he has given me in this work. In fact, the method of securing contributors to the program is entirely in line with his suggestion. I am also greatly appreciative of the assistance given me by other members of the Section, both those who promptly answered our initial request for contributions, as well as those who have subsequently made contributions to the program.

A mailing list was compiled that included the names of all former contributors to the programs of this Section, with the addition of others that might be interested. This list is not complete by any means, and any suggestions or additions are welcome. We hope that each Secretary will endeavor to aid its improvement both by deletion of dead material and by the addition of new prospects. Early in March a personally addressed, multigraphed letter was sent out to every name on this list (approximately three hundred) and about seventy replies were received. This first letter was followed by personal letters to those among the seventy who gave the least promise of any contributions.

The present program, while not characterized by volume of contributions, is noteworthy, I believe, for its quality.

A motion duly seconded to receive the report was carried.

Chairman Nichols referred to a paper by pharmacist Wilson McNeary following which, at last year's session, a resolution was passed asking the Council to take steps to affiliate with the American Conference on Hospital Service. See August JOURNAL A. PH. A., 1927, p. 766, which explains the work of the American Conference on Hospital Service, at considerable length.—See Council Letter No. 13, printed in the September JOURNAL for 1927, p. 870; also relating thereto, item No. 138, on p. 877, and the resolution as adopted, on p. 888 of the same number.

Chairman Nichols explained that one of the features of the Hospital Service is the Library service through which information is disseminated in small pamphlets issued frequently.

William Gray thought that if the Association was affiliated with the American Hospital Association it would be a good thing; otherwise not.

The matter of employing registered pharmacists in hopsitals was discussed at length and after further discussion the resolution as submitted was adopted.

The reading of papers was proceeded with.—*Discussions will accompany the papers as printed and are omitted in the minutes.*

The first paper was on "Facts Regarding the Manufacture, Physical Constants and Keeping Qualities of Soap, Chloroform and Camphor Liniments of the U. S. P.," by Samuel Shkolnik.

The next paper dealt with "Prescription Problems," by H. C. Newton.

"The Practical Training Necessary for a Professional Dispensing Pharmacist" was discussed by P. H. Dirstine.

The Section then gave consideration to "A Symposium on Substances Prescribed by Physicians," presented by E. Fullerton Cook, Chairman of the Revision Committee, U. S. P. These discussions will be published in a succeeding issue of the JOURNAL. Many points of interest were brought out which are now being prepared for publication.

The next paper of the program was by William G. Hall on "Spirit of Ethyl Nitrite."

W. C. Baines discussed "The Importance of the Individual in Practical Pharmacy." The first session of the Section on Practical Pharmacy and Dispensing was then adjourned.

SECOND SESSION.

The second session of the Section on Practical Pharmacy and Dispensing was called to

order by Chairman Nichols at 2:10 P.M., August 26th. The minutes of the first session were read by Secretary Netz and on motion, duly seconded, approved.

The reading of papers was proceeded with in the following order:

"The Quality of Compressed Tablets, Particularly as to Solubility and Ease of Disintegration," by William J. Husa.

"The Effect of Changes of Hydrogen-Ion Concentration upon Compound Tincture of Gentian," by J. C. Krantz, Jr.

"What I Know about Making Ointments," by Fred H. Swift.

"Comments on Ointments of U. S. P. X and N. F. V," by Norman H. Tagg.

"The Diamond Opportunity for Pharmacists," by Robert J. Ruth.

"A Report of Progress in Our Procedure in Prescription Pricing," by Leonard A. Seltzer and A. A. Wheeler.—This is printed in the October JOURNAL A. PH. A., pp. 959–962.

The discussion was omitted in the printing of the latter paper. Mr. Spencer asked the author whether consideration was given in pricing preparations administered much less frequently than the average dosage of medicines.

Mr. Seltzer replied that the frequency of dosage was taken into consideration.

Mr. Gray asked relative to a large number of powders which were given very frequently. He also stated that there was considerable competition in pricing such prescriptions.

Mr. Seltzer said he would not consider reduction of price to a large extent, ever mindful of the professional attention which should attend prescription work.

The matter of pricing proprietary medicines was discussed with no definite conclusions, except that some advance should be charged if relabelled.

Chairman Nichols referred to a prescription—coming into a pharmacy under his management, for renewal—which was underpriced. He told the customer of the facts and he accepted the explanation.

Mr. Seltzer stated that the method under discussion enabled the pharmacists in his pharmacy to establish uniform pricing; he realized that the same prices could not obtain in every pharmacy.

The report of the Committee on Colored Glass Containers was read by Chairman H. V. Arny.—See pp. 999–1003, October JOURNAL A. PH. A.

Mr. Ferguson, representing the Glass Container Association, commended the work of the Committee and hoped that there would be coöperation of the organization he represented with this Committee.

Anton Hogstad asked whether the colloidal chemists had become interested.

Chairman Arny stated that the work of the Committee had hardly begun; Mr. Ayres, head of the research department of the Glass Container Association, will supply selected bottles which will be carefully studied, in an effort to determine why some are satisfactory and others not; the purpose being a study of composition and conditions in manufacture. Anton Hogstad said light played an important part and also the iron in the glass.

After some further discussion it was voted to receive the report and continue the Committee and that coöperation be sought with glass container associations.

The next paper presented was on "A Color Standard for Tincture of Cudbear." This was followed by a "Prescription Clinic," led by Chairman Nichols.

The following papers were read by title:

"Biologicals Viewed as Pharmaceuticals," by J. C. Peacock.

"N. F. Propaganda and Some Prescription Problems," by Peter J. Kolb.

"Ethics or Commerce in Pharmacy," by Leo G. Penn.

It was moved by Louis Saalbach that the papers be accepted; seconded and carried.

Mr. Becker thought there might be arrangements made so that the meetings of this Section and the Scientific Section would not conflict, as members interested in the Section on Practical Pharmacy and Dispensing were also interested in the Scientific.—This was considered a matter for the Committee on Program.

W. L. Scoville, as Chairman of the Committee on Nomination, presented the names of the following for officers during the ensuing year:

Chairman, Adley B. Nichols, of Pennsylvania.

First Vice-Chairman, L. M. Monell, of New York.

Second Vice-Chairman, J. L. Powers, of Michigan.
Secretary, P. H. Dirstine, of Washington.
Delegate to the House of Delegates, Clyde M. Snow, of Illinois.

Chairman Nichols thanked Secretary Netz for his coöperation and asked for papers from the members in attendance; also, for them to bear in mind the fact that papers are wanted and, therefore, it was hoped they would solicit others to contribute to the Section. He thanked the members for the honor given him by the election.

On motion duly seconded and carried the Section on Practical Pharmacy and Dispensing was adjourned.

SECTION ON EDUCATION AND LEGISLATION.

The first session of the Section on Education and Legislation, A. PH. A. was convened at 9:25 A.M., Thursday, August 25th, by Chairman H. M. Faser. Wortley F. Rudd presided during the reading of the Chairman's Address.

ADDRESS OF THE CHAIRMAN.

BY H. M. FASER.

Custom has decreed that the Chairman shall present a brief address at the opening meeting. I shall not attempt to enumerate the many important things this Section has accomplished for pharmacy in the past. These are well known to those who have taken an interest in the work of the Section in recent years.

Your Chairman, together with our Secretary, has endeavored to secure papers on subjects that are of interest to those concerned with education and legislation, and from the list of men who will appear on our program, I think we have positive assurance that some good will come from our meetings.

At the present time when so many changes are being made in education and legislation, it is a wonderful opportunity that we have to meet and discuss those matters of paramount importance to pharmacy, and certainly one of the first places such things should be discussed is before this Section.

LEGISLATION.

In going through the pages of the annual Proceedings of the American Association of Colleges of Pharmacy for 1926, I find that quite a discussion was carried on in the joint sessions of the Colleges and Boards relative to pre-requisite legislation. I gather from what was said by some that they were of the opinion that the Faculties were not doing their duty in the premises and that they were leaving it all up to the Boards. Pre-requisite legislation will eventually come in those States that do not now have it. Just how soon we do not know, and just how best to obtain it is a question. Certainly the American Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy should do all in their power in distributing information that will assist in the matter, but to my mind, the proper place for pre-requisite legislation to begin is in the State Associations. None of us are very familiar with conditions in States other than our own, I mean political conditions that naturally arise when trying to secure passage of a bill through the Legislature. In my own State we pharmacists are very well organized and we work together. When we want legislation, we first consider the proposed measure in our State Association, and after approval by our own organization, we seldom have trouble in passing the bill through the Legislature. The first thing is to have your own house in order and united on what you ask of the Legislature. It goes without saying that you must have a leader in whom all have confidence, in presenting to your local Association anything that would affect all pharmacists. In the discussion mentioned above, some said a professor should not take the lead, others said a Board member should not take the lead, etc. To my mind it matters little whether the leader be a professor, Board member or a layman.

The only new legislation we need that I know anything about is pre-requisite legislation for every State. We no doubt are much in need of legislation repealing some laws that now exist,

Just here I would direct attention to the importance of pharmacists entering politics. The pharmacists of many States have been badly handicapped in the legislatures when adverse or detrimental legislation is proposed, simply because we have no one to champion our cause. Every State Legislature should have among its number a few pharmacists. In the next Legislature of Mississippi we will have at least four pharmacists in both houses. As far as I know, this is the first time Mississippi has ever had a pharmacist in the Legislature. We have always had a few doctors who look after the interest of the physicians. By having pharmacists in the legislatures it would not be necessary for our local Associations to spend so much money every two years in fighting for or against legislation. And then again, a member of the law-making body is on the inside and can do much more effective work than an outsider. With a State Association solidly in favor of pre-requisite legislation and a few pharmacists in the Legislature, no State should fail to pass a prerequisite law.

EDUCATION.

To my mind one of the greatest, if not the greatest, pieces of work undertaken for pharmacy in several decades, has been that of the Commonwealth Fund. The work of Dr. Charters and his helpers now completed and assembled in the book entitled "Basic Material for a Pharmaceutical Curriculum" not only gives us a vast amount of information which we have needed for a long time, but it is positive proof that the pharmacist must be an all 'round educated man. I think when we read the contents of this book that we are all convinced that the statement made by the Committee relative to the length of a course in pharmacy, "would not fall far short of four years," is absolutely true.

It is interesting to note that two of our leading universities have already adopted a minimum four-year course, and that shortly another institution will go on the same basis. We hesitated a long time in extending the course to three years and really have not gotten well settled on our three-year curriculum, but we must all admit that the question of going to a minimum four-year course is a matter of only a very short time. Just when the minimum four-year course will be made compulsory by the Association of Colleges, I do not know; probably some recommendation will be made by the President at this meeting. Speaking personally, I have always believed in being conservative, and when it comes to making radical changes, that we should consider well every angle; however, I am thoroughly convinced that a proper and thorough course, whereby the pharmacist will have the education necessary, not only in pharmacy, materia medica and chemistry, but in those subjects so essential to a man who expects to take his place in the community in which he lives, will take at least four years.

This Section having as its principal function the consideration of those things pertaining to education and legislation, it occurs to me that there are many problems of education other than just a consideration of a course in pharmacy. We, as pharmacists, should bend our efforts to informing the laity and the medical profession on certain matters of importance. I believe that every State pharmaceutical association should take some steps toward having a representative at the State medical association meetings and especially at their district meetings. These people, I am sure, will gladly give us a place on their program. The subjects to be discussed before them is not coöperation between the two professions, that old staid subject with which both professions are thoroughly familiar, and know of necessity must exist, but to my mind the thing of paramount importance, is calling their attention to preparations of the U. S. P., and the N. F. It is my opinion that medical schools are not devoting enough time to old-fashioned materia medica, with the outcome that the young physician does not know what or how to prescribe. This accounts for the vast amount of proprietary medicines prescribed to-day. Please understand that I am not knocking the pharmaceutical specialties of the big manufacturer, neither do I mean to minimize the good work of the research men, but I do mean to say that many preparations prescribed to-day of this make and the other, are, in many instances, identical with official preparations. The pharmacist could present such things to the physicians at their district meetings in a way that would not offend, and in all probability would bring good results.

It also seems to me that we, as pharmacists, should take advantage of every opportunity to inform the public on matters pertaining to medicines and the advantages of having a well-educated pharmacist in their community. Many of us have had this opportunity before certain clubs, business organizations, etc. I believe some well-organized plan should be inaugurated

in every State whereby we could inform the public on such things, laying particular stress on the importance of an educated pharmacist.

Motion was made by C. M. Brown, seconded by Z. M. Cooper, that the address be accepted.

ABSTRACT OF DISCUSSION.

Mr. Speckart said he was interested in prerequisite legislation and that Missouri had failed in such effort.

Chairman Rudd asked why the measure had not passed.

Mr. Speckart replied that after thoroughly discussing the matter, it was thought best to do something for the pharmacists now in business, first; they were having trouble in enforcing the pharmacy law. He referred to chain stores employing only one registered pharmacist while the others in the store were not registered. Competition under such conditions made the overhead expenses in the small stores greater than in the chain stores.

C. B. Jordan said that ownership of drug stores should be restricted to registered pharmacists.

Mr. Speckart contended that when clerks become too scarce owners of stores do without them. He was of the opinion that if the stores doing questionable business were closed there would be sufficient trade for those who decline to do such business.

Dean Serles said the South Dakota law on ownership, passed in 1903, reads:

"Only a registered pharmacist may open or conduct a pharmacy in the State of South Dakota."

He said they had failed in prerequisite legislation, because there were many who had entered the drug business through a short course in pharmacy, and these used their influence against the measure.

The motion to accept the address was carried by vote.

Secretary M. N. Ford made a verbal report of the activities of the officers and urged that the officers for next year begin early in the solicitation of papers for the Section.

The Chairman appointed W. F. Rudd, C. M. Brown and W. J. Husa as members of the Committee on Nominations.

Reading of papers was proceeded with.—*Abstract of discussions will accompany papers, hence, omitted in the minutes.*

The first paper was presented by W. J. Husa, on "The Basis for Agreement for a Standard Three-Year Curriculum."

R. H. Raabe led a discussion on "Pharmaceutical Arithmetic;" he said, a survey had been made by some educational institutions which, thereafter, rendered an opinion that the subject could not be advantageously taught in the lower grades of the elementary schools. He had found that some high-school graduates could not handle common fractions. The institution with which he is connected will require that matriculants pass an examination in common fundamental mathematical problems. He had conducted a class in a summer school for teachers; all of them had been engaged in teaching for a number of years, and of 117 only 12 had any ability in simple calculations.

C. M. Brown agreed with the statement made by the preceding speaker and referred to his son, whose training in arithmetic reflected such conditions.

Mr. Culley had related experience; in his opinion students in the schools were not trained to think.

Dean Jordan said he was surprised to find many high-school graduates without practical knowledge of decimals; he also had related experience with college graduates who held baccalaureate degrees.

Dean Serles had similar experience. He stated that part of the difficulty was due to inability to interpret the English language. There seems to be indecision as to where the decimal point shall be placed, and lack of knowledge of physics, due to deficient training.

W. J. Husa thought the suggestion of the "Syllabus" to have freshmen review common fractions and decimals for a few weeks after beginning their school work was a good one.

Chairman Faser was of the opinion that pharmaceutical arithmetic gave more trouble than most other subjects of the course.

The motion to accept the paper by W. J. Husa, which drew out the discussion on pharmaceutical arithmetic, was carried by vote.

The next paper was that by A. R. Bliss on "The Pharmacist and the Narcotic Evil."

"Too Many Drug Stores," by Wortley F. Rudd, resulted in the adoption of a recommendation provided for in Resolutions 4 and 7.—See September JOURNAL A. PH. A., pp. 885 and 886. The paper will be printed, with discussion, in a succeeding issue of the JOURNAL.

A paper by C. A. Dye, "Some of the Experiences with the Four-Year Course," was read by title.

The first session of the Section on Education and Legislation was then adjourned.

SECOND SESSION.

The second session of the Section on Education and Legislation was called to order by Chairman Faser at 2:00 P.M., Friday, August 26th.

The reading of papers was continued, the first paper of the afternoon being by Frederick J. Wulling on "Commercial Training in Colleges of Pharmacy—Why I Oppose It."

A paper on "Individualism *vs.* Education," by C. A. Dye, was read by C. M. Brown.

"Some Problems Met by Board of Pharmacy Members in Securing Legislation" was presented by John Culley.

A. L. I. Winne read a paper on "Leaks in Pharmacy."

C. O. Lee discussed "Quiz Methods in Pharmacy," in his paper.

The report of the Committee on Nominations was accepted and the following officers of the Section elected for the ensuing year.

Chairman, M. N. Ford, of Ohio.
Vice-Chairman, W. J. Husa, of Florida.
Secretary, A. L. I. Winne, of Virginia.
Delegate to the House of Delegates, Rudolph Raabe, of Ohio.
Alternate Delegate to the House of Delegates, John J. Grasser, of Louisiana.

After installation of the officers—on motion duly seconded and carried—the Section on Education and Legislation was adjourned.

SECTION ON COMMERCIAL INTERESTS.

The first session of the Section on Commercial Interests was called to order by Chairman Bernard M. Keene, Thursday, August 25th, at 7:45 P.M.

Chairman Keene and Secretary O'Connell stated that the program represented the reports they would make and that papers and discussions thereon would take up the time of the sessions.

Chairman Keene appointed the Committee on Nominations as follows: John A. Funk, W. Bruce Philip, Louis Emanuel.

In reporting for the Committee to which was referred a study of the question of unequal discounts, Mr. Philip stated that two or three manufacturers had given reasons for the difference in discounts, but as the Chairman of the Committee could not be present, it would be necessary, in the absence of the correspondence, to make no further report at this time.

The verbal report, on motion by W. C. Anderson, was accepted.

The reading of papers was proceeded with.—*The discussions on the papers will accompany the papers as printed, hence omitted from the minutes.*

The first paper, by F. H. Freericks, discussed the "Chain Store Evil." It was requested that this paper be released to drug publications.

E. H. Niles read a paper on "A College Course in Drug Store Display."

Next, W. Bruce Philip demonstrated a contribution on "Increasing Net Profit by Increasing the Average Sale." Mr. Philip employed an interesting method for demonstrating his topic. The paper with comments will appear in a succeeding issue of the JOURNAL.

The next paper was presented by Denny Brann, entitled "What the Doctor Expects of the Druggist."

"Financial Support Needed for the Commercial Departments of the Colleges of Pharmacy," received consideration by C. B. Jordan.

"Turn Time and Talent" was the title of the next paper, by J. C. Peacock.

"The Druggists Research Bureau" was the subject of an address by E. L. Newcomb.

Aside from the interesting remarks by the speaker, literature on the subject, covering every phase of the movement, was distributed; the same publicity has been sent out generally by mail.

Membership in the Bureau is open to every pharmacist, without any dues at this time; information may be obtained by addressing Dr. E. L. Newcomb, 51 Maiden Lane, New York City.

Ambrose Hunsberger added that Dr. Newcomb had covered the details of the subject thoroughly; he desired to add that the work of the Bureau meant a great undertaking for the benefit of the retail druggists of the country. He was impressed at the first meeting of the Bureau with the efficiency with which the work had been undertaken and that many problems had been solved; there are many other problems still unsolved, and he desired to express his full confidence in what was going to be accomplished. He solicited the help and support of every pharmacist and said the Bureau relied strongly on the relationships between field representatives, manufacturers and retail druggists with whom the management of the Bureau comes in contact. It was hoped to secure absolute facts as to cost of doing business, turn-over, etc., and on the basis of those figures solve the problems which will enable the retailers to have a clearer understanding of the important questions of their business.

It was generally agreed that this was a real forward movement.

The first session of the Section on Commercial Interests was then adjourned.

SECOND SESSION.

The second session of the Section on Commercial Interests was called to order by Chairman Bernard M. Keene at 2:20 P.M., Friday, August 26th.

Papers were read and discussed as follows:

"Necessity for Teaching Commercial Pharmacy in our Colleges of Pharmacy," by W. F. Rudd.

"Optimism in Pharmacy," by Robert J. Ruth.

"Development of a Commercial Course in Pharmacy," by Anton Hogstad, Jr.

"Retail Drug Store Advertising," by W. H. Lamont.

"How to Build Up the Most Profitable 'Side Line' in a Pharmacy—The Prescription Department," by Jacob Diner.

"Old Ideas in a New Light," by Paul Strahl.

"Modern Merchandizing," by A. L. I. Winne.

"Some Observations of Present-Day Retail Pharmacy," by Edward S. Rose.

The report of the Committee on Nominations was presented and on motion received; another motion made closed the nominations and, thereupon, the following officers were elected for the ensuing year.

Chairman, C. Leonard O'Connell, of Pennsylvania.
Vice-Chairman, Denny Brann, of Iowa.
Secretary, R. B. Rothrock, of Indiana.
Delegate to the House of Delegates, Bernard M. Keene, of Indiana.
Alternate Delegate to the House of Delegates, Edward S. Rose, of Iowa.

After installation of the officers, the Section on Commercial Interests was adjourned.

SECTION ON HISTORICAL PHARMACY.

The first session of the Section on Historical Pharmacy was called to order at 7:30 P.M., August 25th, by Acting Chairman J. M. Porterfield; Chairman W. F. Sudro having requested Mr. Porterfield to preside for him, because of his inability to attend. The Secretary also being absent, former Chairman L. K. Darbaker consented to act in his place.

The first order of business was the Chairman's Address; it follows:

CHAIRMAN'S ADDRESS.

BY W. F. SUDRO.

At this, the twenty-fifth, meeting of the Section on Historical Pharmacy of the American Pharmaceutical Association, your Chairman will present a brief history of the organization of this Section.

In making a survey of reports of previous meetings I find that the first meeting of this Section was held August 4, 1903, at Mackinac Island. Dr. Edward Kremers presided as Chairman of the meeting and Mr. E. J. Kennedy, the Secretary at the present time, officiated as Secre-

tary of the first meeting. Twenty-five years is indeed a long span of time and the various individuals who have given freely of their time and energy to make the work of this Section worth while are indeed to be congratulated for all they have done. We have with us to-day many of those who were active during the first meetings of this Section and I trust that many more years will intervene ere their presence among us will be lost.

It has been stated by one of the leaders of industrial life in America that History is "the bunk;" on the other hand, we find expressions from many scholarly minds that History is the guidepost to the future. Pharmacy has had a most glorious past and the events which took place in the days gone by are being continually mirrored for us in the contributions made into the program of this Section now, as in years past.

At the 1923 meeting the address of the Chairman, Mr. Clyde Eddy, included a review of a History of American Pharmacy. From time to time reports have been made on this most important work and I should like to feel that at this meeting something concrete will be offered in the way of definite assurance as to when this work may be completed. It is taken for granted that this work is monumental in nature and that the task of writing up the various chapters is indeed an arduous one; nevertheless, I feel that this work should be nearing its completion quite soon.

At the meeting five years ago a suggestion was made by the Chairman that an index of historical material should be prepared. I believe that this has already been done and it is all the more important considering the fact that we are soon to be housed in a home of our own. I believe that greater effort should be expended in securing exhibits of all kinds dealing with Historical Pharmacy. E. G. Eberle, our worthy Historian, is now, and has been for some years, engaged in the very constructive work of securing historical evidence of all kinds. This type of work is one which at the best is not appreciated fully until many years have elapsed, but I feel quite confident that many years hence those who are actively engaged in the practice of our profession will feel deeply indebted to the Historian for the wonderful work which he is doing.

A great deal of difficulty was experienced in preparing a program for the Section meetings due to one cause or another and I believe a great deal of blame may be laid upon the method by which officers of the Section are chosen. I firmly maintain that greater care must be exercised in the choosing of the officers of this Section and the individuals so elected should, by all means, prove equal to the task.

On motion duly seconded and carried the report was accepted.

The Historian's Report was called for; it follows:

THE HISTORIAN'S REPORT.

BY E. G. EBERLE.

Joseph Bienaimé Caventou, pharmacist, of Paris, died fifty years ago, He was associated with Pelletier, a pharmacist and son of a pharmacist, in the discovery of quinine. The German pharmacist Friedrich Wilhelm Adam Sertürner who discovered morphine established the nature of alkaloids about the time that Caventou and Pelletier made their discoveries of a number of other alkaloids—quinine, strychnine, etc., Posselt and Reimann produced pure nicotine, and Oudry separated theine in 1928.

Baron Justus von Liebig—as youth, an apprentice in a pharmacy—was a friend and coworker of Friedrich Wöhler, for a time pharmaceutical inspector. The two scientists were associated in many researches. The history of synthetic chemistry begins with Wöhler's production of urea in 1828.

About fifty years ago the foundations were laid for colloidal chemistry by our fellow-member, Ex-President John Uri Lloyd, in his studies of "Precipitates in Fluidextracts."

A century ago a pharmacist named Unverdorben distilled "crystalline" from indigo, less than ten years later Runge obtained "Kyanol" from coal tar and about the same time Fritzsche separated an oily base from anthralinic acid, from indigo, which he named "aniline," and Hoffmann's researches proved that these products were chemically identical.

From 1777 to the day of his death Karl Wilhelm Scheele was an apothecary in the town of Köping which even to-day has less than 5000 inhabitants. Scheele has been referred to very often

lately so I will not speak of him at length; my purpose is to place historical markers of important events in the industries and sciences and give credit to pharmacy and pharmacists.

Since our last meeting a volume on "Four Thousand Years of Pharmacy" has been written by one of our Ex-Presidents—Prof. Charles H. LaWall. It reflects credit on the author and has interested many in the development of the sciences and commerce. Because merchandizing in the average drug stores predominates the public has little conception (or has a misconception) of what pharmacy really is, what part it has in the industries, commerce and the world's progress throughout the ages and the present; also, certain matters relative to it are misunderstood and this makes it necessary to inform the public; for pharmacy, we know, affects its immediate welfare.

One of the outstanding publications of the past year that bears on the history of Pharmacy is the facsimile reproduction of the first edition of the "Pharmacopœia Augustana," published by the State Historical Society of Wisconsin. The late Albert H. Hollister was an active member of the AMERICAN PHARMACEUTICAL ASSOCIATION and a Vice-President. His interest in pharmacy was known by his activities during life and expressed by his will and that of his widow; thereby the Hollister Pharmaceutical Library Fund was established in 1914 and is part of that of the Historical Society of Wisconsin.

"The object of the Society is not to duplicate the valuable pharmaceutical collection of the University of Wisconsin but to do for pharmaceutical Americana what the Society has been doing for Americana at large, and to do it in the same broad spirit. As a contribution of that kind the Society has reproduced the first edition of the 'Augsburg Pharmacopœia,' one of the earliest European pharmacopœias and the one which possibly exercised the greatest influence upon later pharmacopœias. It no doubt guided the compilers of the London Pharmacopœia, later editions of which guided the compilers of the first United States Pharmacopœia in like manner. With this the first of a series of reproductions the State Historical Society hopes to impart a new stimulus to pharmacopœial historical research everywhere making it possible for historians to use photographically true copies of the originals."

"For the opportunity to present to students of the history of pharmacy this facsimile of the first edition of the 'Augsburg Pharmacopœia' as Number One of the Hollister Pharmaceutical Library, the State Historical Society of Wisconsin is indebted to Dr. Joseph Schneider of Milwaukee."[1] Dr. Edward Kremers edited the volume and furnished the translations of the articles presented as introductory essays. The edition is limited and, therefore, those desiring a copy should order at once.

The Facsimile Reproduction of the first edition of the "Pharmacopœia Augustana" is an outstanding work as far as American pharmacy is concerned and possibly to a certain extent points to a way in which the Library of the American PHARMACEUTICAL ASSOCIATION Headquarters can contribute services to pharmacy at large and to that of the United States in particular.

Joseph Jacobs has presented a number of volumes to the ASSOCIATION all of which have been acknowledged in the JOURNAL except one, received recently, entitled "Hortus Cantabrigiensis" or "A Catalogue of Plants, Indigenous and Exotic, 1915." The volume is the eighth edition and was corrected and augmented by Frederick Pursh, author of the Flora of North America.

Mrs. H. M. Whelpley, widow of our late beloved member, has set aside for the ASSOCIATION a complete set of U. S. Pharmacopœias, a number of Dispensatories and foreign Pharmacopœias. She also has donated a set of slides used by the late Dr. H. M. Whelpley in the illustrated lectures delivered before the Section on Historical Pharmacy.

Our Senior Ex-President, John Uri Lloyd, has presented a timely paper to this Section that strikingly communicates a message which the Editor has endeavored to bring to all who have historical matter, books, letters, apparatus, first products, etc. Unless the depository for them is provided for they may become lost to pharmacy. The author of the paper speaks of three volumes which were wanted for the Lloyd Library and although unsuccessful search was made in this country and Europe for them, they came to him unexpectedly from donors. We will now have a headquarters wherein will be a Museum and Library offering the opportunity for the preservation of books and historical material, which will prove instructive or a service to pharmacy. Every pharmacist has some of this material or knows of some one who has, that may become lost, whereas, if preserved, it will serve a useful purpose.

---

[1] Dr. Joseph Schneider has died since this report was presented.—EDITOR.

Every year some of those who have labored with us must respond to Death's Call. We have received notice of the death of a few of the following only recently and of a lesser number we have not been advised of the date of death. We would be grateful for advice relative to the decease of members together with notices appearing in the press. Brief sketches of twenty-four of the deceased have appeared in the JOURNAL; of the nine others this was not possible, because no data were available. The latter are: Louis L. Filar, Donald J. Grenier, Charles Heno, Gustavus Michaelis, Henry Adolph Pfafflin, Franklin Edwin Reeder, Miss Jennie Robbins, George F. Stier, Clarence Edgar Stump. The names of the others are: E. A. Baer, Solomon Boehm, Hermann Engelhardt, Charles T. P. Fennel, Samuel H. T. Hayes, Gustave Horstmann, Jeannot Hostmann, Charles H. Huhn, Henry E. Kalusowski, John McKesson, Alphonse Major, Redmond Mayo, George Merck, Robert L. Morland, Dr. Frederick Belding Power, George H. Schoell, Henry C. Schranck, Frederick W. Schueller, James L. Taylor, Heredis J. Vargas, George James Waugh, Jacob Weinkauff, David Westheimer, John H. Winkelmann. Of the latter, nine had been members for fifty years or more. Every division of pharmacy is represented in the list and a number of the deceased had gained distinction in their respective activities, and at least one was internationally known for his researches; all of them honored their profession.

The Historian has continued the system of clipping, preserving prints and photographs, and indexing them, and noting methods of indexing and filing. Citing a few examples: Photograph of the late Dr. H. M. Whelpley (1924), and one at the grave of the deceased; a photograph of Dr. Frederick Power, taken a few years ago; photographs of National Pharmacy Week displays; photo of a bust of Dr. A. Tschirch and of the memorial window at the University of Berne; photograph of G. Dragendorff; the pharmacy of Dr. Witte where he served as an apprentice, photo of his study when he was director of the Pharmaceutical Institute at Dorpat; a monument to him, erected by his grateful students in Russia. Print of delegates in attendance at the International Congress of Plant Sciences at Ithaca; the store in which "O. Henry" clerked for about five years; sheet from the Sunday *Atlanta Journal* for August 5, 1927, containing a biographical sketch of the physician-pharmacist Crawford W. Long, which is preceded by a statement that the discoverer of ether-anæsthesia may be filmed; a newspaper clipping showing William G. Walde, expert government book-binder, with some of the valuable historic documents he has restored for the Department of State.

The centenary of invention of friction matches was celebrated in England last April, the inventor being John Walker, a pharmacist of Stockton-on-Tees. A sketch of Hawthorne's "Privateer" appeared in the *Literary Digest* for April 9, 1927, accompanied by a half-tone of Benjamin F. Browne, a Salem, Mass., apothecary (1793–1873), who is the hero of the "Yarn of a Yankee Privateer."

The Historian has for a number of years endeavored to enlist an interest in historical matter pertaining to pharmacy and pharmacists, so that the Library and Museum may become of real value, not only in serving pharmacists, but in a larger service with those who are likewise engaged. Your assistance will be helpful; give thought to the many opportunities for contributing to the history of pharmacy and a valuable library and museum will be established; the day will be brought nearer by endowment and it is hoped that men of means will respond to this opportunity of service.

On motion, duly seconded and carried, the report of the Historian was accepted.

The reading of papers was proceeded with.

A paper on "Cascara Industry," by Thurman J. Starker, was read by title.

"The History of the Mint Industry," by C. C. Glover, was read.

"High Points in the History of the American Pharmaceutical Manufacturers' Association," by B. L. Maltbie, was read by title.

E. G. Eberle presented a paper, in abstract, on "The Two Former St. Louis Meetings."

Ambrose Mueller exhibited a number of old books from his library. All of them related to pharmacy. He donated a volume on Chemistry, 1827, a translation of M. Payen, published in Stuttgart.

Lyman F. Kebler presented a paper on "The Father of the First Pharmacopœia in America." He explained that he had been searching the records for some time and now was in possession of many interesting data which he would at some later day present for publication. He also spoke of his success in finding an oil-painting of Dr. Brown, which he had photographed. A sketch

by his Great 3rd Grand-daughter with a half-tone of the photograph, presented by Dr. Kebler, is printed in this number of the JOURNAL.

The Historian referred to his unsuccessful search for a picture of Dr. Brown and expressed his pleasure in Dr. Kebler's find.

Edward Kremers said he was pleased to know that some one in Washington is making it his duty to learn more about this important personage; he continued: "While on an historical pilgrimage in the fall of 1920, it was my privilege to visit Lititz where the first military pharmacopœia was compiled."

"When as children we studied United States History we got the impression from our teachers, whether wrongly or not I cannot say, that when Washington fled before the British he took his army to the worst part of the country, Valley Forge. We know Washington to have been a very practical man and when we now visit that region of Pennsylvania we see that he withdrew his troops to the granary of the colony. Severe as was the winter they possibly found better conditions among the Moravian colonists than they could have found elsewhere. Now, these Moravian settlements were communistic—Lititz, you may be shocked to learn, was communistic as late as 1830—and the unmarried young men lived in a stone dormitory erected for them. Inasmuch as the young men's dormitory at Lititz—*e. g.*, could be requisitioned with least hardship to the community it was converted into a hospital and it is in this building that Dr. Brown completed his task."

Acting Chairman Porterfield appointed as members of the Committee on nominations: J. G. Godding, Charles Gietner and Leo Suppan.

A paper by Frederick J. Wulling on "State Association Proceedings Should Become More Extensive Sources of Historical Information" was read.

Next in order on the program came two papers by Edward Kremers—"Humboldt's Travels in South America" (continued) and "The Apothecary in Literature" (continued). The author stated that, as these papers would be published, he preferred to call attention to another matter. He passed around a copy of the photostatic reprint of the "Pharmacopœia Augustana" to which the Historian had previously referred in his report.

It was while getting better acquainted with its contents, that he was reminded of a manuscript on Dia-preparations laid aside a number of years ago. Dia-preparations have become quite obsolete in modern pharmaceutical literature. About the only reference we find in the indexes of our dispensatories is the diachylon ointment. If we consult our histories of pharmacy we find mention made of several, but a satisfactory explanation of them as a class and their origin seems to be wanting.

A search for Dia-preparations in the older pharmaceutical literature has resulted in the accumulation of a voluminous mass of notes. Incidentally, the speaker has become better acquainted with a number of formularies which previously have been known to him by title only. From the vast amount of material collected it seems that, whatever its original meaning and subsequent corruption, **Dia** stands for prepared: thus, *e. g.*, **Diascammonium** is prepared scammony, as we to-day speak of **Creta praeparata** or **Conchae praeparatae.** Evidence of this is found in Baumés *Éléments de Pharmacie.* The preparation may consist simply in pulverization or some other simple modification, as *e. g.*, Diascammonium cydoniatum. Or the powder may further be altered by making a confection of it, etc.

Whereas Dia-preparations have disappeared almost entirely from pharmaceutical literature, they have not disappeared entirely from general English literature. Indeed, possibly the best account of them may be gleaned from Murray's New English Dictionary. Wooton wrote his "Chronicles" late enough to profit thereby and consequently gives unquestionably the best general account of them.

"Neither dia nor dragge was there in Burie towne" is one of the old quotations found in Murray. Neither drug nor preparation of drug was to be found, etc. At a later date the speaker hopes to present a more detailed account of this now obsolete class of galenicals.

EDITOR'S NOTE: A picture of the Brothers' House in Lititz, Pa., where the first American Army pharmacopœia was prepared by Dr. William Brown, 1777–1778, will be found in December JOURNAL, 1920, page 1132. See also PROCEEDINGS, A. PH. A., 1890, page 90, and PROCEEDINGS of 1902, page 114.

The speaker also passed around facsimiles of title pages of four Spanish editions of Monardes, the first treatise on American medicinal plants and drugs. It was in 1893 that a German published a German translation of the Latin translation by Clusius as a contribution to our quadricentennial celebration of the discovery of America by Columbus. To the speaker this seemed humiliating when we, who ought to have been most concerned, did not even know of the original. After thirty years of search, the Library of the University of Wisconsin was at last so fortunate as to secure a copy of the first edition. Recently, he said, "we have been equally fortunate in securing almost as many as twenty copies of editions of the original Spanish, as well as translations in Latin, Italian and French. The early English translation has recently been reprinted, not as an historical pharmaceutical document, but as a specimen of seventeenth-century English. From the early translations it becomes apparent that those countries that maintained an oversea trade—there exists also a Dutch translation—were the ones primarily interested.

"It is hoped that this literature, the very rock bottom of all drug investigation so far as American medicinal plants and their products are concerned, may be made generally available to all historical students through the Hollister Pharmaceutical Library which has just issued the photostatic reprint of the **Augustana.** One chapter a year would provide material for half a century's work and publication."

As to the recommendation by Dean Wulling that each State Pharmaceutical Association collect historical material for its respective State, he said, "it may be pointed out that the Wisconsin Pharmaceutical Association appointed such a Committee at the Green Bay meeting in 1897. It was in the next year that Wisconsin celebrated its fiftieth anniversary as a State—hence the occasion to start various historical activities.

"As one of the results, material for the Historical Drug Store in the Museum of the Wisconsin Historical Society was collected. The Latin kitchen occupies a position opposite the colonial kitchen and contains nothing but what has been in a Wisconsin drug store during the first fifty years of statehood. True, it is not replete with art treasures such as are found in similar exhibits in Europe, but it is replete with interest nevertheless. Not only does it appeal to the druggists of the State but to the general public as well. Even the Roumanian Crown Prince stopped to take notes while he and his entourage were visiting the museum. More important, however, is the judgment of the Secretary of the National Association of Museums who pronounced it the most striking exhibit, from a museum point of view, which he had seen while making an inspection tour of the museums of the country. As already indicated, the museum represents only one of the results of the activities of the Historical Committee of the Wisconsin Pharmaceutical Association."

The following papers were then presented:

"What Are Galenicals?" (to be completed) by Charles H. LaWall.

"Schieffelin & Co., The Oldest Wholesale Drug House in New York City," by Otto Raubenheimer.

"Gesellschaft fuer Geschitche der Pharmacie," by Otto Raubenheimer.

"All Things Come to Those Who Wait," by John Uri Lloyd.—(See September JOURNAL, p. 850.)

"Sponge, Its History in Medicine Together with a Brief Account of Its Habits and Structure," by John T. Lloyd.

"Coöperative Drug Merchandizing at Wholesale," by J. H. Marshall.

The first session of the Section on Historical Pharmacy was then adjourned.

SECOND SESSION.

The second session of the Section on Historical Pharmacy was called to order by Acting Chairman J. M. Porterfield, at 7:30 P.M. August 25th.

The first paper of the evening was by Leo Suppan on "The Doctrine of Signatures."

In commenting on the paper Edward Kremers said: "Mr. Suppan emphasized what might be called the philosophic aspect of his subject. In this connection it may not be amiss to bring to your attention a statement made by Dr. George Sarton in the introduction to his "History of Science" the first volume of which has recently made its appearance. He claims that it is impossible to understand mediæval science without understanding religion of that period, for the two are closely interwoven.

"Supplementing Mr. Suppan's illustrations permit me to bring to your attention the discovery of American ginseng. While in Manchuria, Father Jartou had witnessed the collection of ginseng for the Chinese Emperor. An account of this he sent to his superior in Paris with the remark that the Manchurian forests resembled those of Canada and that possibly the plant might be found in New France. A copy of this relation came to Father Lafitau who, having read it with interest, searched diligently for the plant. For a time his labors were unrewarded. When at last he found it he was happy indeed. From a squaw, versed in Indian medical lore, he learned that the name of the plant was garentonguen. Now ginseng is the Chinese for man root, and the Indian garentonguen has the same meaning. Hence one of the conclusions drawn by Lafitau was that the American Indian must be related to the Mongolian.

"Now, so far as the doctrine of signatures is concerned, the ginseng root resembles the entire body of man, hence is not a cure for the diseases of any particular organ, but a panacea."

Mr. Suppan donated a copy of "Handbuch der Botanischen Pharmacognosie" by M. J. Schleiden, Jena. This book was donated by Enno Sander to Otto A. Wall, by the latter to H. M. Whelpley, and by him to Leo Suppan, who now presents it to the AMERICAN PHARMACEUTICAL ASSOCIATION. An illustrated lecture on "The Evolution of the Tablet Machines" was presented by Perry A. Foote, of the University of Wisconsin.

A vote of thanks was given Messrs. Mueller and Suppan for their donations and to Mr. Foote for his interesting lecture.

A copy of an address delivered by James H. Beal at the funeral of Dr. H. M. Whelpley was donated to the ASSOCIATION.

Secretary H. C. Christensen read a paper on "The Influence of Henry Milton Whelpley in the Formation of the National Association of Boards of Pharmacy."

Edward Kremers passed around the "Arzney Holbuch" of the Winkler family issued by the Hirsch Apotheke in Brenen. Carl Winkler came to Milwaukee about 1845. The interesting contribution will be published in a succeeding issue of the JOURNAL; hence further comment is omitted here, except to say that in these books the prescriptions for a family were recorded by the apothecary; the book being held and owned by the family would indicate the ownership of the prescription.

"The Apothecary of the Georgian Period and of To-day. Why the Lowered Estimate," by Joseph Jacobs, was read.

Edward Kremers said: "The fact should be brought out that the apothecary of England, also the apothecary of the continental army of the Revolutionary War—was essentially a medical practitioner and, therefore, does not correspond to the continental apothecary of Europe. The College of Physicians of London was the first corporation of its kind in Britain and to it was granted the privilege by Parliament to decide who was to be permitted to practice medicine as a physician. Next came the College of Surgeons and it had the right to give permission to practice medicine as a surgeon.

"During the great plague of London, the bishops and physicians, together with those who had means, left the stricken city and its population to the mercy of the apothecaries, who thus ingratiated themselves with the poorer classes. (See *e. g.*, De Foe.) When, after the plague was over, the apothecaries made the most of their opportunity and secured from Parliament the privilege to organize as a Society of Apothecaries, they did not pretend to the professional status of a college or faculty, neither did they desire identification with the trades as a guild, but they were organized into a society, a sort of hydrid between college and guild. Apothecaries Hall was an outcome.

"The quarrels between the physicians and apothecaries as medical practitioners were not only fought by themselves but were carried into English literature. Their professional relation is also reflected in English literature, even of a more modern type. Thus, if you read 'Saint Ronan's Well' by Scott you will learn that when the society dames related their ills to the physician present, he might give them a pill such as he carried in his pocket but he refused to take a sixpence for the medicine which he insisted on giving gratuitously. Thus he placed the ladies under obligation who felt bound to consult him in his office when they had to leave the usual consultation fee of a crown.

"In Charlotte Bronté's 'Jane Eyre' you will learn that when a member of the gentry household was sick a physician was called. However, when a maid or even the governess was ill the

apothecary was called. The physician charged a fee and might leave medicine or write a prescription to be filled. The apothecary was not permitted to charge a consultation fee, but to place a price on his medicine only. Hence the apothecary was the cheaper medical practitioner, good enough for the servants."

The report of the Committee on Nominations was presented, and on motion duly seconded and carried the following were elected officers for the ensuing year:

Chairman, W. P. Porterfield, of North Dakota; *Secretary*, Ambrose Mueller, of Missouri; *Delegate to the House of Delegates*, Charles Gietner, of Missouri.

After installation of the officers a motion was made, seconded and carried to adjourn.

CANADIAN PROPRIETARY ARTICLES TRADE ASSOCIATION PRICE MAINTENANCE METHOD HELD NOT IN ACCORD WITH LAW.

Commissioner O'Connor, after investigation under the combines investigation act into the Proprietary Articles Trade Association, concludes his report by stating "he is convinced that the P. A. T. A., all-embracing as it is, or as it is designed to be, in its control of the entire trade in nationally advertised proprietary medicines and toilet articles, is an organization which has operated and is likely to operate to the detriment of and against the interest of the public."

A final analysis is quoted from the *Oil Paint and Drug Reporter*, of October 31st: "The commissioner recognizes the service to the community rendered by both retail and wholesale druggists, and the hardships under which they have been operating in the face of such competition as that of the department stores, the mail-order houses and the chain stores. He also recognizes that the distributor is entitled to a fair return for his services, but he is satisfied that 'there is, of course, no one uniform price which can be regarded as fair and reasonable. With operating costs varying from 18 to 20 per cent, it is obvious that what is a reasonable return to the man whose costs are at the maximum are unreasonably high for the man at the other extreme.' The P. A. T. A., however, 'imposes on all druggists one minimum price for each article, which price may represent an advance or may represent a reduction according to the character of the particular business.' It 'projects itself between the retailer and the consumer, and by the instrument of the stop-list compels the retailer to demand from the consumer a price that the latter would otherwise not be required to pay. To endorse such an association would, in my view, be a retrograde step.' "

There is a way for legally doing away with unfair competition, progress has been made and there is reasonable hopefulness that a plan will be made effective in the near future, based on the rights a manufacturer has in selling his products.

N. W. D. A. ASK REDUCTION OF TAX.

W. L. Crounse, representing the National Wholesale Druggists' Association, has presented briefs in behalf of the organization. Mr. Crounse said the N. W. D. A. had adopted a resolution favoring a reduction of the corporate income tax rate from 13½ per cent to 10 per cent. In this connection Mr. Crounse explained that the wholesale drug business had a large number of stockholders, and the tax, as now applied, "is distinctly unfair because no matter how few shares an individual possesses his interest is assessed with a tax at the rate of 13½ per cent on the profits, although his income is so small that if derived from an individual business or partnership he would pay a tax at a very much lower rate or perhaps would be wholly exempt from tax payment."

The high tax, he said, increases the difficulty of corporations in obtaining funds for legitimate expansion.

PHARMACEUTICAL LEGISLATION IN NEW JERSEY.

Secretary Robert P. Fischelis has issued special Bulletin No. 1, in which he advises the members of New Jersey Pharmaceutical Association of the names of the legislators who have given assurance that they will support the proposed changes in the New Jersey pharmacy law, in the interests of the public health.

ASSOCIATION BUSINESS

AD INTERIM BUSINESS OF THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1927–1928.

Office of the Secretary, 10 West Chase St., Baltimore, Md.

LETTER NO. 3.

November 10, 1927.

To the Members of the Council:

27. Approval of Minutes. Motion No. 1 (See Council Letter No. 2, page 883) has been carried.

28. Election of Members. Motions No. 2, No. 3, and No. 4 (See Council Letter No. 2, p. 884) have been carried. Applicants for membership numbered 1 to 3 inclusive, and applicants for membership numbered H-1 to H-20 inclusive, and applicant for membership numbered L. M.-1 are, therefore, declared elected.

29. Committee on Standard Program. Chairman Hilton has appointed T. J. Bradley as the third member of this committee to serve with the Chairman and the Secretary. (See Council Letter No. 14, 1926–1927, page 880, item 154.)

30. Appropriation for Commission on Proprietary Medicines. The following request has been received from Chairman J. H. Beal of the Commission:

> "The Commission on Proprietary Medicines is now engaged in making a study of the subject of Cosmetics, and of the necessity, if any, for legislation. It is likely that the Commission will need some money for printing and postage, and I hereby make application on behalf of the Commission for an appropriation of $50."

The request was submitted to the Committee on Finance and has been approved by that Committee.

(*Motion No. 5.*) *It is moved by Holton that $50.00, or as much thereof as may be necessary, be appropriated for the expenses of the Commission on Proprietary Medicines.*

31. Appropriation for Expenses of Committee on Colored Glass Containers. Chairman Arny has submitted bills for the expenses incurred in the work of this Committee, the report of which is printed on page 999 of the October issue of the JOURNAL OF THE A. PH. A., with the request that an appropriation be made. The request was submitted to the Committee on Finance and has the approval of that Committee.

(*Motion No. 6.*) *It is moved by Day that $50.00, or so much thereof as may be necessary, be appropriated for the expenses of the Committee on Colored Glass Containers.*

32. Retail Selling Price of the N. F. V. in Canada. The following communication has been received from Chairman DuMez of the Committee on Publications:

> "The J. B. Lippincott Company advise that they are required to pay a duty and an excise tax amounting, with the incidental expenses, to about fifty cents on each copy of the N. F. sold in Canada. Their agents report that purchasers object to paying this additional amount when it is added to the selling price of $3.50 and the Company asks that the ASSOCIATION approve a retail selling price of $4.00 on the book for Canada which will cover all these expenses and yield approximately the same return to them.
>
> "It appears that this suggestion is a fair one under the circumstances and that its adoption will simplify the handling of the book in Canada, and therefore I move that the Council approve $4.00 as the retail selling price of the National Formulary, Buckram Bound, in Canada."

(*Motion No. 7.*) *It is moved by DuMez that a retail selling price of $4.00 per copy for the National Formulary V in Canada be approved.*

33. Use of the Text of the N. F. V. The following communications have been received from Chairman A. G. DuMez of the Committee on Publications:

> "I have examined the request of Mr. George W. Fiero of the University of Southern California, College of Pharmacy, to use portions of the text of the National Formulary in the book entitled 'A Review of Pharmacy,' and find that there is no objection to granting him this privilege.
>
> "The manner in which the text is to be used would indicate that the minimum charge of $5.00 would be sufficient for this purpose.

"I am, therefore, recommending that permission be granted Mr. Fiero to use the text of the National Formulary as indicated, and that a fee of $5.00 be charged for this purpose."

"In reply to your letter of the 20th instant, relative to the request of Mr. C. H. Bowersox to use portions of the text of the National Formulary in a series of articles which he intends to write for the National Association of Drug Clerks, I would say that the project is a good one and that permission should be granted. However, it has been our practice not to permit the use of the text of the National Formulary in full or in such amounts that the material could be used to replace the National Formulary itself.

"Since Mr. Bowersox states that he does not intend to give directions, I believe that his request falls in the same category as the many others for which permission has been granted and that it is unnecessary to take a full vote of the Committee on Publications on the matter. As Chairman of the latter Committee, I therefore recommend to the Council that permission to publish formulas from the National Formulary without giving directions for their preparation be granted to Mr. Bowersox providing he pays the minimum fee of Five Dollars ($5.00) which has been charged in the past to protect our copyright."

(*Motion No. 8.*) *It is moved by DuMez that George W. Fiero and C. H. Bowersox be granted permission to use the text of the N. F. V. for partial reproduction in "A Review of Pharmacy" and in a series of articles to appear in the Journal of the National Association of Drug Clerks, respectively, and at the usual charge of $5.00 in each case.*

34. Life Membership. Philip Henry Utech of Meadville, Pa., has become a Life Member of the ASSOCIATION in accordance with Article IV of Chapter IX of the By-Laws.

35. Applicants for Membership. The following applications properly endorsed and accompanied by the first year's dues have been received.

No. 4, Noel Thaddeus Ballard, 4138 12th St., N. E., Seattle, Wash.; No. 5, David Bisen, 599 Fourth Ave., Brooklyn, N. Y.; No. 6, Clarence Hunter Brown, 4125 Brooklyn Ave., Seattle, Wash.; No. 7, Edgar F. Carswell, 10 Main St., Gorham, Maine; No. 8, J. Berne Crandall, 8903 Mendota Ave., Detroit, Mich.; No. 9, Peter Nevin Crawford, P. S. Box 518, Sebring, Fla.; No. 10, Joseph L. Dorion, 67 Peterboro St., Detroit, Mich.; No. 11, Edward D. Driscall, 6910 Clayton Ave., St. Louis, Mo.; No. 12, Earl B. Fischer, 1010 W. 43rd St., Minneapolis, Minn.; No. 13, Katherine Graham, 203 E. Keith St., Morman, Okla.; No. 14, Harry H. Gray, 9225 Edmunds Ave., Cleveland, Ohio; No. 15, Luis Guilló, 622 Insurgentes, Mixcoac, D. F., Mexico; No. 16, Elmer N. Henderson, Harris, Mo.; No. 17, Theodore J. Jensen, 1416½ 11th Ave., Seattle, Wash.; No. 18, Charles Melbourne Johnson, 911 West Johnson St., Madison, Wis.; No. 19, John Forrest Kelley, P. O. Box 191, Clearfield, Pa.; No. 20, Anderson Fonning Lee, 2324 8th Ave., New York, N. Y.; No. 21, John Lee, 206 South Oxford St., Brooklyn, N. Y.; No. 22, Norman Francis Libert, 4003 15th Ave., N. E., Seattle, Wash.; No. 23, Carlos Marin, Av. Republica de Guatemala, No. 51, Mexico, D. F., Mexico; No. 24, Anna Cover Norton (Mrs.), 3409 Walbrook Ave., Baltimore, Md.; No. 25, Charles Spragin Pierce, Main St., Springvale, Maine; No. 26, Robert H. Plummer, 610 W. 24th St., Vancouver, Wash.; No. 27, Ira V. Rothrock, 231 Main St., Mt. Vernon, Ind.; No. 28, Emanuel Veritus Shulman, 2301 Bryant Ave., Baltimore, Md.; No. 29, I. C. Smith, 2031 West Flagler St., Miami, Fla.; No. 30, Clarence W. Sondern, 415 Sterling Ct., Madison, Wis.; No. 31, J. Edwin Stokes, Newberry, S. C.; No. 32, William Daniel Thompson, 101 Main St., Falkston, Ga.; No. 33, Walter B. Tongue, 394 Main St., Poughkeepsie, N. Y.; No. 34, Joseph Vadheim, Tyler, Minn.; No. 35, James Carlisle Walton, P. O. Box No. 772, Steubenville, Ohio; No. 36, Clark Raymond Ward, 119 West Main St., Lancaster, Ohio; No. 37, Richard H. Waterman, 613 Orkington Road, Baltimore, Md.; No. 38, Dale Watson, 325 Pearl St., West Lafayette, Ind.; No. 39, George Orville Young, Buckhannon, W. Va.

(*Motion No. 9.*) *Vote on applications for active membership in the American Pharmaceutical Association.*

36. Applicants for Membership on Account of Contributions to the Headquarters Building Fund. The following non-members of the A. PH. A. have pledged $25.00 or more to the Headquarters Building Fund and have made a cash payment of $5.00 or more.

H-21, Gordon Alonzo Baker, Box 567 University Station, Gainesville, Fla.; H-22, Raymond J. Bishop, Glencoe, Minn.; H-23,

Herbert Bohn, 215 E. 32nd St., Indianapolis, Ind.; H-24, Bertha Agnes Brown, Clarion, Iowa; H-25, James Franklin Cox, Jr., 106 Hub Ave., Echo Point, Wheeling, W. Va.; H-26, Charles Rodgers Delcher, 1512 Hollins St., Baltimore, Md.; H-27, George E. Dixon, Shepherd, Texas; H-28, Norman A. Edgar, 2410 McKinley Ave., Berkley, Calif.; H-29, Loftus E. Emdin, Jr., 1556 Howard Ave., Utica, N. Y.; H-30, Janet Foley, 459 Castro St., San Francisco, Calif.; H-31, George J. Holicky, c/o Cook Drug Co., Frago, N. Dak.; H-32, Layton Argus Johnson, 2106 Garfield Ave., So., Minneapolis, Minn.; H-33, James Wilson Jones, 113 E. Prentis St., Iowa City, Iowa; H-34, Theodore J. Knaak, Deerfield, Ill.; H-35, James G. McBride, 4603 Cleveland Ave., Lincoln, Nebr.; H-36, Francis J. O'Brien, New Scotland Ave., Albany, N. Y.; H-37, Carl G. A. Peterson, Casselton, N. D.; H-38, Richard Harrison Swain, Box 21, Crane Hall, Gainesville, Fla.

(*Motion No. 10.*) *Vote on applications of contributors to the Headquarters Building Fund for Membership in the American Pharmaceutical Association.*

E. F. KELLY, *Secretary.*

AMERICAN PHARMACEUTICAL ASSOCIATION HEADQUARTERS LOCATED IN 1859.

"The eighth annual meeting of THIS ASSOCIATION will take place at Boston, on the 13th of the present month. Judging from what has heretofore taken place, at the meetings of the ASSOCIATION, we can safely predict a harmonious session, and one which will develop a large amount of valuable, practical information, in the form of essays and communications, from the members and others interested in the elevation of the pharmaceutical profession.

"As the AMERICAN PHARMACEUTICAL ASSOCIATION, as its name implies, is national in its character, it strikes us forcibly that the meetings should, in future, be held at the National Metropolis; and ceasing to be a wanderer from city to city, *the society should have a local habitation as well as a name.* We were struck with the place of meeting last year as being peculiarly appropriate; and we have no doubt but that upon application being made to the Regents of the Smithsonian Institution, a place of deposit in the building can be had for the books, papers, etc., belonging to the ASSOCIATION."—*Journal and Transactions of the Maryland College of Pharmacy*, Volume 1, 1859, p. 144.

PROPOSED MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION AND OF CANADIAN PHARMACEUTICAL ASSOCIATION IN TORONTO.

The resolutions of the A. PH. A. relative to the proposed meeting in Toronto have been published in the minutes of the General Sessions A. PH. A. Action of our Neighbor Association follow:

Resolution of the Council of the Canadian Pharmaceutical Association.

That the Council of the Canadian Pharmaceutical Association meeting in Regina, Sask., this tenth day of August 1927, believing that a pharmaceutical conference between the United States and Canada would mark an epoch in pharmacy on this Continent and tend to raise the status of the profession, as well as enable us jointly to consider many problems that are common to pharmacy on both sides of the international border, hereby extends a cordial invitation to the American Pharmaceutical Association to hold its Annual Convention in Toronto in 1932 on the occasion of the 25th anniversary of the Canadian Pharmaceutical Association.

(Signed) R. B. J. STANBURY, *Secretary.*
G. A. BURBIDGE, *Chairman of Council, Canadian Pharmaceutical Association.*

Resolution of the Canadian Pharmaceutical Association.

That this Convention of the Canadian Pharmaceutical Association meeting at Regina, Sask., extends fraternal greetings to the AMERICAN PHARMACEUTICAL ASSOCIATION about to convene at St. Louis.

We trust our Confreres in the United States may have a most successful meeting and one that will be helpful in solving the many problems confronting pharmacy on this continent.

We heartily commend the action of our Council in extending an invitation to the AMERICAN PHARMACEUTICAL ASSOCIATION to hold its 1932 Convention in Toronto on the occasion of our 25th anniversary.

August 12, 1927.

(Signed) R. B. J. STANBURY, *Secretary.*
G. A. LA POINTE, *President, Canadian Pharmaceutical Association.*

EDITORIAL NOTES

Editor: E. G. EBERLE, 10 West Chase St., Baltimore, Md.

Members of the Council, A. PH. A.: S. L. HILTON, *Chairman;* CHARLES H. LAWALL, *Vice-Chairman;* E. F. KELLY, *Secretary;* H. V. ARNY, A. G. DUMEZ, GEO. M. BERINGER, H. C. CHRISTENSEN, J. A. KOCH, J. H. BEAL, W. B. DAY, T. J. BRADLEY. *Ex-Officio Members:* C. W. JOHNSON, *President;* AMBROSE HUNSBERGER, JOSEPH JACOBS, *Vice-Presidents;* C. W. HOLTON, *Treasurer;* E. G. EBERLE, *Editor of the Journal;* A. G. DUMEZ, *Editor of the Year Book;* LEONARD SELTZER, *Chairman of the House of Delegates.*

Collaborators: The Members of the Council; E. FULLERTON COOK, *Chairman,* U. S. P. Revision Committee; W. L. SCOVILLE, *Chairman,* N. F. Revision Committee; the Chairmen of the Sections, A. PH. A.; L. W. ROWE, M. N. FORD, ADLEY B. NICHOLS, C. LEONARD O'CONNELL, W. P. PORTERFIELD; EDWARD SPEASE, *President,* A. A. C. P.; CHARLES B. JORDAN, *Chairman,* Executive Committee, A. A. C. P.; A. C. TAYLOR, *President,* N. A. B. P.; HENRY C. CHRISTENSEN, *Secretary,* N. A. B. P.

NEW AND NONOFFICIAL REMEDIES.

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. PUCKNER, *Secretary.*

IODOXYBENZOATES.

Ortho-iodoxybenzoic acid (which contains two oxygen atoms bound to an iodine atom), iodosobenzoic acid (which contains one oxygen atom bound to an iodine atom) and iodobenzoic acid were first prepared by Victor Meyer and co-workers in 1892. Iodoxybenzoic acid resembles salicylic acid, chemically differing in that the hydroxyl group of the latter has been replaced by an iodoxy $\left(I\begin{matrix}=O\\=O\end{matrix}\right)$ group.

Actions and Uses.—The salts of iodoxybenzoic acid are indicated chiefly in arthritis. . . . .

Dosage.—Intravenously, 0.75 to 1 Gm. of the salts of iodoxybenzoic acid is dissolved in 100 cc. of sterile physiologic solution of sodium chloride. It should be administered by the gravity method, over a period of not less than seven or more than twelve minutes, followed by a small amount of the sterile sodium chloride solution, to minimize contact of the drug with the walls of the vein. A course of treatment is from five to ten injections, and the doses may be given twice a week. Orally, the dosage recommended is twice that of the intravenous method; for rectal administration a solution of two Gm. of the ammonium salt has been used.

Caution.—Salts of iodoxybenzoic acid are oxidizing substances, and will explode if overheated or exposed to a flame. To avoid slow decomposition, they should also be kept out of direct sunlight, and in a dry place.

AMIODOXYL BENZOATE.—Ammonium *o*-iodoxybenzoate.—$C_6H_4(IO_2)COONH_4$.—The ammonium salt of 2-iodoxybenzoic acid. The latter differs from ortho-hydroxybenzoic acid (salicylic acid) in that the hydroxy group is replaced by the iodoxyl $\left(I\begin{matrix}=O\\=O\end{matrix}\right)$ group. It contains 42.7 per cent of iodine.

Actions and Uses.—See preceding general article, Iodoxybenzoates.

Dosage.—See preceding general article, Iodoxybenzoates.

Amiodoxyl benzoate occurs as a white crystalline, odorless powder, with a slightly bitter taste; readily soluble in water, slightly soluble in alcohol, insoluble in benzene, ether, and most of the other commonly used organic solvents. An aqueous solution (1 in 20) when freshly prepared is colorless, and neutral to litmus.

Dissolve 0.1 Gm. in 5 cc. of water; add an excess of sulphurous acid; collect the resultant iodobenzoic acid on a filter, wash and dry at 105 C.; it melts at 160–162 C. Dissolve 1 Gm. in 20 cc. of cold water and divide in two portions; to one portion add 1 cc. of a neutral potassium iodide solution: 0.1 cc. of tenth-normal sodium thiosulphate solution should completely remove any iodine liberated in five minutes (*uncombined iodoxybenzoic acid*); to the other portion add 2 cc. of acetic acid: there should be no precipitate within five minutes (*iodosobenzoates*). Dissolve 1 Gm. in 50 cc. of water: separate portions of 10 cc. each yield a faint opalescence with 1 cc. of diluted nitric acid and 1 cc. silver nitrate solution (*halides*); a faint turbidity with 1 cc. of diluted hydrochloric acid and 1 cc. of barium chloride solution (*sulphates*); no marked coloration on the addition of 1 cc. ferric chloride solution (*salicylates*). An aqueous solution of the salt meets the requirements of the test for *heavy metals,* U. S. P. X. page 439.

Ignite cautiously about 1 Gm. accurately weighed, *previously* reduced by sulphurous acid in the presence of sulphuric acid: the residue should not exceed 0.1 per cent. Dry about 0.5 Gm., accurately weighed, for forty-eight hours over sulphuric acid in a partial vacuum; the loss in weight should not exceed 1 per cent. Transfer about 0.25 Gm. previously dried to constant

weight over sulphuric acid, accurately weighed, to a 500-cc. Erlenmeyer flask, dissolve in 50 cc. of cold water, add 2 Gm. of potassium iodide, followed by 10 cc. of acetic acid, covering with about 150 cc. of cold water, stoppering the flask, and allowing to stand in a cool, dark place for thirty minutes; titrate the liberated iodine with tenth-normal sodium thiosulphate solution, using starch paste as an indicator: the amount of tenth-normal sodium thiosulphate solution consumed corresponds to not less than 10.3 per cent, nor more than 10.8 per cent active oxygen. Transfer about 0.25 Gm., previously dried to constant weight over sulphuric acid, accurately weighed, to a bomb tube; determine the iodine content by the Carius method: the amount of iodine found should not be less than 42 per cent, nor more than 43 per cent.

Amiodoxyl Benzoate-Abbott.—A brand of amiodoxyl benzoate-N. N. R.

Manufactured by the Abbott Laboratories, North Chicago, Ill. U. S. patent applied for. No U. S. trade-mark.

EPHEDRINE HYDROCHLORIDE-SWAN-MYERS (See *Jour. A. M. A.*, April 16, 1927, p. 1235).

The following dosage form has been accepted:

Capsules Ephedrine Hydrochloride-Swan-Myers, 0.05 Gm.

EPHEDRINE SULPHATE (See *Jour. A. M. A.*, March 19, 1927, p. 925).

Ephedrine Sulphate-Abbott.—A brand of ephedrine sulphate-N. N. R.

Manufactured by the Abbott Laboratories, North Chicago Ill. No U. S. patent or trademark.

From *Jour. A. M. A.*, Sept. 24, 1927.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1927, p. 340).

Parke, Davis & Company, Detroit.

Diphtheria Toxin-Antitoxin Mixture, 0.1 L +.—(See New and Nonofficial Remedies, 1927, p. 341.)—Also marketed in packages of 30 bulbs (*Bio. 68*) each containing 1 cc., representing ten immunizing treatments.

From *Jour. A. M. A.*, Oct. 1, 1927.

INTERNATIONAL CONFERENCE ON POTENT DRUGS.

The following is reprinted from the *Pharmaceutical Journal and Pharmacist*, of October 8, 1927; it is a summary of the observations of the Austrian, French and Dutch Governments upon the report of the International Conference for the unification of the formulæ of potent drugs which has been transmitted to the Society by the Privy Council Office:

AUSTRIA.

(A) *Names of Medicinal Substances.*—In many countries other varieties of aconite than *A. Napellus* are used, and the names of these aconites should be indicated in the pharmaceutical description; for example, Tinctura Aconiti Napelli, Tinctura Aconiti Ferocis. For belladonna no minimum, but a fixed alkaloid content; for example, 3 per cent should be required. Belladonna root also should appear in the table. For cantharides not only a minimum quantity, but a definite percentage of cantharidin should be required. Other varieties of digitalis than *Digitalis purpurea* should be admitted. The content of active principle should also be indicated. The requirements for *Hyoscyamus niger* do not include alkaloid content. The content of active principle in lobelia should be required. The strychnine content and not the total percentage of alkaloid should be given for *Strychmos Nux Vomica*. The requirements for strophanthus and ergot should include an indication of their content of active ingredient or their potency. The hydrastine content of Pulvis Hydrastidis should be given as a definite figure, and not as a minimum percentage. There is no requirement of content of active substance or potency laid down for Urginea Scilla and Cannabis Indica.

(B) It is agreed that the chemical control of the arsenobenzenes should be associated with biological control.

(C) It is suggested that to unify the methods of estimating potent drugs the proposed setting up of an international commission would not be so satisfactory as if the various Pharmacopœia Commissions were to study the questions first, and subsequently were to submit their findings to an international commission.

(D) To such a commission the findings of the Pharmacopœia Commissions of different States upon the possibilities of biological methods of testing might also be submitted.

FRANCE.

(A) *Opium.*—Rice starch should be employed in place of sugar and milk for adjusting strength.

(B) The description of "serum" should not be given to artificial solutions. It should be reserved for organic liquids separated by coagulation from blood or milk.

(C) *Doses.*—Adrenalin hydrochloride—substitute doses of 2 and 10 milligrams for doses of 1 and 4 milligrams proposed by the Convention. Ergot—substitute doses of 1000 and 6000 milligrams for those of 500 and 1500 milligrams proposed by the Convention. Phosphorus—substitute a dose of 2 milligrams in 24 hours in place of 3 milligrams. The doses of the following articles require

further examination: atropine sulphate; tincture extracts and leaves of belladonna; iodine; strychnine; tincture of strophanthus. A list of additional potent drugs for which a maximum dose should be fixed is given. Maximum doses for prolonged treatment should be given for phosphorus, digitalis, strychnine and atropine. Maximum doses should be given for other methods of administration than by the mouth. Rules should be agreed upon for fixing maximum doses for children.

HOLLAND.

(A) Of the different systems of nomenclature that in the Swedish Pharmacopœia is considered to be the best.

(B) The Kew Index, particularly in its Supplements, is not always clear upon scientific names.

(C) The proposed chemical nomenclature should be compared with that drawn up by the Union International de Chimie Pure et Appliquée.

PERSONAL AND NEWS ITEMS.

"Xrayser III," in *Chemist and Druggist* of October 15th, congratulates Prof. Henry George Greenish in the following:

"Congratulations to Professor Greenish, whose name appears as that of a prizeman in your Retrospect of fifty years ago (C. & D., October 8th, p. 470). During the half-century which has elapsed since his appearance as one of the most promising students of his year, he has got through a wonderful lot of work for the improvement of pharmaceutical education in this country. Before his time, students' textbooks dealing with drugs were largely collections of fairy tales which had been passed on by one author or compiler after another. That state of affairs has now been changed for the good, and for this we are mainly indebted to Professor Greenish, whose useful innings is, I trust, likely to be continued for a long time to come."

Fifty years ago, as a student, Professor Greenish was a prize-winner of his class in the British Pharmaceutical Society School of Pharmacy. He is an honorary member of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Dr. A. T. Henry, director of the Wellcome Chemical Research Laboratories, London, was awarded the Hanbury medal this year. The medal is awarded periodically for "high excellence in the prosecution or promotion of original research in the chemistry and natural history of drugs." He delivered the inaugural address at the opening of the Pharmaceutical Society's School (his *Alma Mater*). The late Prof. John M. Maisch and Dr. Frederick B. Power were honored with the Hanbury medal.

The President and Mr. Marns have enjoyed from all accounts an interesting experience in Canada and the United States, according to the *Liverpool Evening Express*. At a complimentary dinner given in his honor Mr. Skinner received an enthusiastic "welcome home" from his admirers, and regaled them with some impressions of the lighter side of the tour.—See September JOURNAL, A. PH. A., p. 891.

The inauguration of the exhibition of souvenirs of Marcellin Berthelot at the Faculty of Pharmacy, Paris, took place on October 24th. Interesting accounts of the centenary of his birth have appeared in the press, chemical and foreign pharmaceutical publications. In the exhibit are many pieces of apparatus used by the great savant, his library, etc.

Pierre Eugene Marcellin Berthelot was born at Paris, Oct. 25, 1827; died there, March 18, 1907. He became professor in the École de Pharmacie in 1860. In later years, he was general inspector of higher education, a member of the Senate; and 1886–1887, he was Minister of Education.

The *Pharmazeutische Zentralhalle*, one of the best known German scientific pharmaceutical Journals, established by that master of pharmacy, Dr. Hermann Hager, in 1859, in its number of October 6, 1927, pp. 634 and 635, publishes a timely review of the YEAR BOOK, A. PH. A. for 1924, Vol. 13. The review was written by our fellow-member **Prof. Otto Raubenheimer** of Brooklyn. He concludes his review with the statements that the YEAR BOOK of the A. PH. A. not only contains abstracts but also monographs and working formulas, and that they can be justly called brothers or companions to the older "Jahresbericht der Pharmazie."

H. H. White has returned from a motor trip through England and Scotland and also attended the unveiling in Edinburgh of the American-Scottish Memorial.

William B. Day, former President and Secretary of the A. PH. A., recently spoke before Stark County Druggists' Association (Illinois) and during the same visit before Kewanee Rotary Club. The address to the latter dealt with the history of pharmacy and with the services rendered to the public by pharmacists

and the part they have had in the progress of medicine and the sciences generally.

The Apotheker-Zeitung (German Apothecaries Society), of October 26th, is largely devoted to the 25th anniversary celebration of the establishment of the Pharmaceutical Institute, in Berlin, and in connection therewith recognition of the services of **Director Hermann Thoms,** who now retires. On this occasion the subject of Dr. Thoms' address related to odoriferous substances and essential oils and after concluding the dissertation he reviewed his activities and the history of the Institute. Tributes were paid him by his students, the alumni, members of the faculty, and other co-workers. A bronze tablet of Dr. Thoms has been placed in the Institute. His visit to the United States, accompanied by Mrs. Thoms, will be remembered.

His election to honorary membership in the AMERICAN PHARMACEUTICAL ASSOCIATION speaks of the appreciation of its members and wishes are extended for many years of good health and continued service for pharmacy. His "Handbook" on the art and science of pharmacy is the most comprehensive work on pharmacy, comprising about 4000 pages. In its preparation Dr. Thoms has had the coöperation of nearly two hundred leading authorities in the subjects relating to pharmacy.

At the 53rd annual meeting of the German Apothecaries' Society, in Bremen, the 25th anniversary of Dr. Salzmann, as President, was celebrated. The program of the convention commemorated the event; the high point of the ovation given President Salzmann came during a theatrical arranged and presented by members of the Society.

Prof. Otto Raubenheimer delivered an address before New York German Apothecaries' Society, November 3rd, comparing the German and U. S. Pharmacopœias.

Porto Rican pharmacists have adopted the Code of Ethics of the AMERICAN PHARMACEUTICAL ASSOCIATION and will have it translated into Spanish for distribution among the pharmacists of Porto Rico.

Yields in the drug garden of the Wisconsin Pharmaceutical Experiment Station this year show the adverse effects of a cold, wet spring and a dry summer, according to **Dr. W. O. Richtmann.** However, the 33-acre garden has supplied the pharmaceutical experiment station of the University with plenty of materials for its research, and a supply of the raw material for State druggists and hospitals.

This year some 56 species of plants were under cultivation and some 90 others were grown under natural conditions in the wooded part of the plot. The species under cultivation included peppermint, poppy, catnip, belladonna, digitalis, horsemint, wild bergamot, wormwood, wormseed, spearmint and milfoil, which were grown in from one-fourth to one-half acre plots. The experiment station has developed a strain of digitalis acclimated to Wisconsin winters. Its product is in demand throughout the country because of its uniform quality, and the seed is sought by growers in northern latitudes because the strain is inured to rigorous winters.

This year, for the first time, the station seems to have achieved success in its efforts to establish horsemint, a plant native to the sandy Wisconsin soils, in the heavier soil of the Madison region.

Editor Hugo Kantrowitz, who conducted a tour of pharmacists in Europe, has returned to his desk. He expresses himself as well pleased; others are importuning him to arrange another tour in 1929.

HUGO KANTROWITZ.

Dr. Edwards Kremers brought out some interesting points relative to work of pharmacists for which they should have credit; he passed around to those in attendance at the Section on Historical Pharmacy an editorial from the *Pharmaceutical Review,* wherein, among others, a reference is made to a news item relative to the late Frederick Stearns, in which he is referred to as a business man of Detroit, *not* as a druggist or pharmaceutical manufacturer.

William G. Ungerer, member of the A. PH. A., has been created a Chevalier of the Legion of Honor by the French Government. Senator Eugene Charabat came to New York to present the decoration.

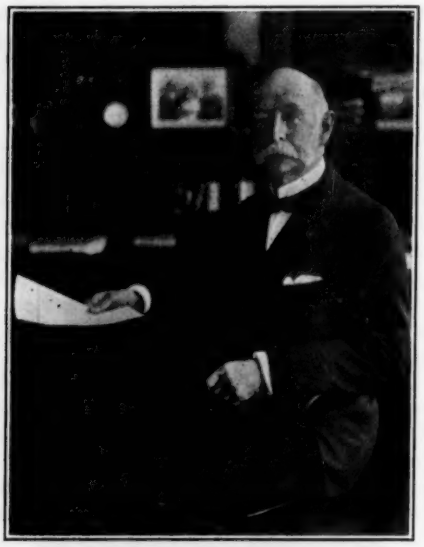
Prof. I. M. Kolthoff, of the University of Utrecht, Holland, has been appointed professor of analytical chemistry at the University of Minnesota. He replaces Professor Brinton, who recently resigned to do private work. Professor Kolthoff is an honorary member of the A. PH. A.

OBITUARY.

JAMES VERNOR.

Less than two months ago the veteran member of the ASSOCIATION gave his place to one next in line and now he has departed. James Vernor, of Detroit, Mich., member of the A. PH. A. since 1866, died at his home, aged 84 years. A sketch of the deceased will be found in the JOURNAL for July 1919, p. 529.

In 1861, Mr. Vernor entered the drug business with Higbee & Stearns; he enlisted, when the war between the States broke out,



JAMES VERNOR.

serving for two years as hospital steward. He was then promoted to the lieutenancy and officiated in that capacity until the close of the war. As in all things, Mr. Vernor actively discharged his duties as soldier. He was taken prisoner at the Battle of Stone River, and escaped; he was member of the Company that captured President Davis and owned a number of prized souvenirs of this period.

Soon after returning to Detroit he opened a drug store (1866) with Charles L'Hommedieu; in 1896, he retired from the drug business to devote all of his time to the manufacture of Ginger Ale, a business which developed into a very large manufacturing establishment. The formula of his product was worked out by Mr. Vernor while he was in the retail business; the care of the pharmacist in the prescription department was carried to his manufacturing plant. Mr. Vernor was member of the Detroit City Council for about 25 years; for a period of intervening 10 years he remained out of the Council; he finally retired three years ago. Always fearless in standing for what he believed right, he passed through a number of turbulent periods. The *Detroit News* said of him, "He was the stormy petrel of the City's governing body, the 'grand old man' of its deliberations. He was in the front line trenches in all of its great battles." Mayor John W. Smith issued a statement to the Press in which he said: "I deeply regret to learn of the death of James Vernor. I knew him many years and I am only one of thousands of Detroiters who felt that they knew him intimately. His long public service and his kindly disposition endeared him to all of us and he was a figure whose place in Detroit will never be filled. My memory scarcely stretches back to the time when he did not bulk large in our life and it will seem strange to all of us now that James Vernor is no more."

Councilman William P. Bradley, in behalf of the council said: "The City of Detroit and the County of Wayne have sustained a great loss in the death of Mr. Vernor. He devoted the best part of his life to the service of the people of this community. He was the most genial man possible for a public official to have had relations with, and his extraordinary judgment in public problems made him of tremendous value as a concilman, and later for the splendid advice he was able to give in solving great problems."

Mr. Vernor was a member of Michigan's first Board of Pharmacy, and served for eight years. His last participation in the meetings

of the AMERICAN PHARMACEUTICAL ASSOCIATION was at the Detroit Convention. He is survived by a daughter, Mrs. Egbert Davis, and a son, James Vernor, Jr., both of Detroit.

He honored pharmacy and when he engaged in larger activities the care he gave to pharmacy was also transferred. Detroit has perpetuated his memory in naming a great thoroughfare "Vernor Highway" as a mark of gratitude for his services.

ALEXANDER WEIR SCOTT.

A. W. Scott, of Fort Collins, Colo., member of the AMERICAN PHARMACEUTICAL ASSOCIATION since 1906, died September 27th, after an illness of about five years. The deceased had been engaged in the drug business at Fort Collins for about forty years. He was President of the A. W. Scott Drug Co., which owns a pharmacy that is considered one of the finest in Colorado and employs more registered pharmacists than any other store of the State. Mr. Scott was member of several other business enterprises of his home city and deeply interested in the Colorado Agricultural College, the students of which looked upon him as a friend. He was a member of the Colorado State Board of Pharmacy for sixteen years, 1895–1911, and during this time, at different periods, held the various offices of the Board; after his retirement from the Board, he became member of the State Board of Health. He was President of Colorado Pharmacal Association for the year 1902–1903.

Mr. Scott held the esteem of his fellows and the high regard of pharmacists throughout the State. The local press spoke of the deceased in highest terms and deplores the loss of a leading citizen of Fort Collins. He was sixty-five years of age.

Fred M. Odeana, for nearly forty years associated with Parke, Davis & Co., and who was a member of the small group of Detroiters who helped organize and build up the company, died October 20th at his home in Detroit. He retired in 1912, and had been in poor health for several years. Mr. Odeana was born in Atlanta, October 3, 1841. He served his pharmacy apprenticeship in Atlanta and, in 1878, went to Detroit and joined the sales force of Parke, Davis & Co. The funeral was attended by employees of his old firm.

SOCIETIES AND COLLEGES.

THIRD ANNUAL CONVENTION OF THE NEW YORK PHARMACEUTICAL CONFERENCE.

The 3rd annual conference of the New York Pharmaceutical Conference will be held November 30th and December 1st. Henry B. Smith is the President, Peter Diamond is Chairman of the Trade and Public Welfare Committee.

NATIONAL DRUG TRADE CONFERENCE.

Arrangements for the annual meeting during the first week of December of the National Drug Trade Conference were made at a meeting of its executive committee. The meeting will be held in Washington, December 9th. Discussions at the meeting of the executive committee included questions relative to legislation and administration which will be brought before the annual meeting.

OFFICERS OF UNITED MEDICINE MANUFACTURERS.

President, H. E. Woodward, Binghamton, N. Y.; *Eastern Vice-President*, Andrew H. Gerndt, New York City; *Central Vice-President*, Charles F. Keller, Mechanicsburg, O.; *Southern Vice-President*, W. H. Willson, Atlanta, Ga.; *Western Vice-President*, Frederick Beautel, Los Angeles, Cal.; *Treasurer*, George W. Reese, Cleveland, O.; *Secretary*, James F. Pickett, Washington, D. C.; *Counsel*, Clinton Robb, Washington, D. C.

ARIZONA PHARMACEUTICAL ASSOCIATION AT NOGALES, OCTOBER 18th AND 19th.

President C. W. Johnson, of the A. PH. A., visited Arizona and Idaho Associations and added interest to the successful meetings. Delegate Arthur G. Hulett rendered an account of his visit to the St. Louis Convention and spoke of the resolutions which had been passed and of interest to Arizona pharmacists. President Stults reviewed the activities of the Association. President Johnson outlined pharmaceutical history of this country and spoke of the large part the AMERICAN PHARMACEUTICAL ASSOCIATION had in the progress of pharmacy. Secretary Hulett in making his report referred to the address of Dr. Beal. It is most informative for those who were not informed anent the work of the

A. PH. A. He asked that his name be not placed in nomination for reëlection. The officers for the ensuing year are:

President, J. Homer Smith, Yuma; *Vice-President*, Paul F. Lorenzen, Bisbee; *Secretary*, Robert Jones, Superior and Mesa; *Treasurer*, A. L. Boehmer, Phoenix.

Executive Committee: E. C. Stults, Phoenix; A. P. Martin, Tucson; D. P. Kimball, Phoenix; Russell Meadows, Douglas; E. C. Mason, Phoenix.

IDAHO PHARMACEUTICAL ASSOCIATION.

The twenty-first annual convention of the Idaho State Pharmaceutical Association convened at Pocatello, October 12th.

President C. W. Johnson, of the A. PH. A., surprised the members by an unannounced visit. Appreciation was expressed because of his coming; he delivered an address on "The Evolution of Pharmacy."

Responsive to the suggestion of President Davis, in his address, it is hoped to arrange the dates for the meetings in Idaho, Utah, Oregon and Washington during succeeding weeks.

John Culley, Secretary of Utah Association, was present as delegate from the National Association of Boards of Pharmacy. He delivered an address on "The Pharmacist and the Law."

The convention went on record as favoring a full-time office and field Secretary. Authority was voted to the newly-elected Secretary, H. M. Cummins, and the executive committee to obtain the services of a man for this position.

The annual dues were reduced to $15 a year for all druggists, to $5 a year for salesmen and clerks and $2 a year for students in pharmacy.

The officers for the ensuing year are:

President, J. P. Halliwell, Pocatello.

First Vice-President, A. E. Sutton, Caldwell.

Second Vice-President, H. Fitzpatrick, Twin Falls.

Third Vice-President, L. A. Songer, Meridian.

Secretary, H. M. Cummins, Melba.

Treasurer, D. W. McCombs, Gooding.

President C. W. Johnson of the A. PH. A., as stated, visited the Associations in Idaho and Arizona and also pharmaceutical organizations and schools on the Pacific Coast, covering not so very far from 5000 miles on his journey.

WEST VIRGINIA ASSOCIATION DATES CHANGED.

The date of the Twenty-Second Annual Meeting has been set for Tuesday and Wednesday, June 12th and 13th, at White Sulphur Springs. The date was originally set for June 26th and 27th but due to unavoidable circumstances it was necessary to select the earlier date.

THE AMERICAN DRUGGISTS' FIRE INSURANCE COMPANY HOME OFFICE BUILDING.

The building shown herewith will be the Home of the A. D. F. I. Co. The building is to be completed in October of 1928. It will have 15 stories, concrete and steel construction with variegated Bedford stone facing. The location is Central Parkway at the N. W. corner of Walnut St. The success of this Company is an exemplification of coöperation by retail pharmacists.

Home of the American Druggists' Fire Insurance Company, Cincinnati, Ohio.

KANSAS PHARMACEUTICAL ASSOCIATION.

The *Kansas Pharmaceutical Association News Letter* of recent date says, "No one of you (Kansas druggists) would consider operating his place of business even one day without adequate fire and tornado insurance. Yet just as essential and as necessary and as much as insurance to you in the conduct of your business as a Druggist, is the successful condition of the Kansas Pharmaceutical Association. You should consider the Association just as essential and your membership in it and support of it just as necessary for the continuation and protection of your business as you do insurance against damage and loss by fire or tornado."

The suggestion is timely but the same good argument obtains for national associations—see addresses of James H. Beal on "The Work, Principal Purposes and Ideals of the AMERICAN PHARMACEUTICAL ASSOCIATION," and "The Philosophy of Conservatism"—an address before the recent N. A. R. D. Convention.

NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

The National Wholesale Druggists' Association is ready and willing to assist the retailers in their Christmas advertising. If you have not received the following, send to the N. W. D. A., 51 Maiden Lane, New York City, for copies and information.

Proof of full page Christmas newspaper advertisement. We will supply cuts (mat) for this free.

Proof of 4-quarter page Christmas newspaper ads which may also be used as circulars for mailing to customers. We will supply cuts (mats) for these free.

Proofs of Christmas window strips.

Suggestions for special Christmas window displays.

E. News stories for your papers and Radio Talk on Christmas. The Radio Talk and News Stories may also be mailed direct to consumers as circulars.

Suggested Letters for retailers to mail to consumers.

RHO PI PHI FRATERNITY.

The plan of the Supreme Council of the Rho Pi Phi Fraternity is to present in competition a Scholarship Award. A wall plaque and cup trophy is favored by Dean Ernest Little of New Jersey College of Pharmacy and Dean T. J. Bradley, of the Massachusetts College of Pharmacy. This award will add stimulant to better scholarship.

The Rho Pi Phi Fraternity is an organization of pharmaceutical students with Chapters in twelve colleges and universities: Alpha, Massachusetts College Pharmacy; Beta, Union University; Gamma, Columbia University; Delta, Rhode Island College Pharmacy; Epsilon, University Buffalo; Zeta, Ohio State University; Eta, New Jersey College Pharmacy Theta, Brooklyn; Iota, Fordham, University; Kappa, University Southern California; Lamda, University California; Mu, Connecticut College Pharmacy; Nu, University Toronto. Also, Alumni clubs at New York City, Boston, Cleveland, Buffalo, Rochester and Los Angeles. At the last National Convention, a new committee was created, the Committee on History and Publication. Chairman Sanuel S. Dworkin, of Biological Products Committee of the A. PH. A., honorary member of the body, was appointed Chairman of this Committee and H. Orlins of Beta, Union University, as Secretary.

NEW YORK VETERAN DRUGGISTS HOLD SHORE DINNER AT SHEEPSHEAD BAY.

The annual outing of the New York Veteran Druggists' Association took place September 8th at the Beau Rivage Hotel, Sheepshead Bay, L. I. The members and ladies met at the hotel about five o'clock and after an hour spent in renewing old acquaintanceship and admiring the pleasant surroundings sat down to an excellent shore dinner. The usual business session was omitted with the exception of Secretary Lehman's roster of the members. This was in verse and his brief descriptions of the members' characteristics made a hit.

A pleasant custom of the veterans is that of recognizing the birthdays of members and their wives. The following were duly decorated with a flower and, amidst much hilarity, Chairman Nicolai also read their horoscope. Those thus distinguished were Mrs. J. Leon Lascoff, Mrs. Hugo Kantrowitz and Messrs. Adrian Paradis, Wm. F. Brandt, Carl Benkendorfer, Sylvius Ketcham, J. Leon Lascoff, Robert R. Lampa, L. F. W. Seifert and Reginald Dyer.

PORTO RICO DRUG STORES.

A list of retail drug stores, importers and dealers in drugs and chemicals for Porto Rico will be distributed to properly accredited firms upon application to the Commercial Intelligence Division.

THE PHARMACIST AND THE LAW.

PHYSICIAN GUILTY OF VIOLATING NARCOTIC ACT IF PRESCRIPTION IS NOT GIVEN IN GOOD FAITH.

In a decision of the Circuit Court of Appeals for the Ninth District—Milton A. Nelms, plaintiff in error, v. U. S. A., No. 5127, the courts points out that the Harrison Narcotic Act does not prevent a registered physician from dispensing narcotics to a patient by prescription in the course of professional practice. But it was held that if a physician issues the prescription not in the course of professional practice, with intent that the recipient shall obtain narcotics from a druggist upon such prescription, and the prescription is not given in good faith for the treatment of disease, he takes a principal part in the prohibited sale, no matter whether the quantity is great or small, or whether the druggist has knowledge of the circumstances under which the physician has given the prescription or is advised of any relationship that may have existed between the physician and the recipient of the prescription.

Defendant on plaintiff in error was convicted under three counts of an indictment predicated upon a violation of the Harrison Narcotic Act (Act Dec. 17, 1914, 38 st. 785 as commended by Act Feb. 24, 1919, 40 st. 1130).

The question of the constitutionality of the Narcotic Act is settled by the decisions in Gin Fuey Moy v. U. S., supra; U. S. v. Doremus, 249 U. S. 86, and Hooper v. United States, 16 F (2) 868.

A STATE'S RIGHT.

The U. S. District Court for the Eastern District of Michigan handed down a decision on September 26, 1927, holding that an osteopathic physician licensed under the laws of Michigan was entitled to the right of mandamus to compel the collector to issue a permit authorizing the osteopathic physician to dispense narcotics.

BILL FOR COMPULSORY USE OF METRIC SYSTEM TO BE PROPOSED IN NEXT CONGRESS.

Representative Britten will reintroduce House Bill No. 10 of the 69th Congress "to extend the use of metric weights and measures in medicine," with such modifications as may be necessary to conform to recommendations of the All-American Standards Council.

Representative Britten has recently returned from Europe and is satisfied that sooner or later the metric system is to come into our system of business. He said the law as it stands legalizes the use of the metric system for all transactions. The Britten Bill provides for the use of the metric system for merchandizing with some modifications of the old Bill; it would make compulsory something already legalized on the statue books.

PREPARED MEDICINE MARKET IN JAMAICA.

Prepared medicines are obtained chiefly from the United States, the United Kingdom, and Canada. There is a demand in Jamaica for prepared medicines, those of the United States and United Kingdom being favored, as shown in the following figures on importations of medicines and drugs, including quinine in 1925: United States, £35,998; United Kingdom, £21,997; Canada, £4392; all other countries, £3243. These figures were compiled from the Jamaica Blue Book.

There is no law in Jamaica prescribing that proprietary remedies undergo official examination and at present there are no restrictions upon the sale of such remedies. Proprietary medicines are usually imported into the Island for sale, some having the formula of the preparation on the package and some without any formula whatever. Introducing some kinds of proprietary medicines in this district through the medium of free samples has been found to be efficient. (Consul Jose de Olivares, Kingston, Jamaica.)

BOOK NOTICES AND REVIEWS.

Merchandise Control. By Albert W. Frey in Collaboration with Paul H. Nystrom, published by Alexander Hamilton Institute, New York.

This book is one of a series of ten textbooks used with other materials in a correspondence course in retail merchandizing offered by the Alexander Hamilton Institute. This institute has given for years a correspondence course in general business principles which has met with great success and enjoyed high praise from educational authorities. The basis of this course is also a series of textbooks.

The titles of the books in the course in re-

tail merchandizing will give a general idea of the nature of the course: Volume 1, The science of business; Volume 2, Store management and business organization; Volume 3, Financing; Volume 4, Merchandise control; Volume 5, Buying; Volume 6, Selling; Volume 7, Advertising; Volume 8, Credits, collections and correspondence; Volume 9, Accounting; Volume 10, Business law.

Volume 4, *Merchandise Control*, is the book under review. The theme of the book is the desirability of scientific purchase and stock control records.

If, in manufacturing plants, scientific purchasing and stock control can and have reduced inventories, decreased the risks of loss from depreciation and obsolescence, speeded turnover and increased profits, is it not reasonable to expect similar gains from the introduction of these methods into retail businesses?

The book describes, explains and analyses the successful experiences of various retail stores in the use of these methods. Practically all of the illustrations are from the successful experience of department stores. The book is, therefore, of special interest to those concerned in the management of department stores and other large stores in which department store management methods can be applied.

Frequent apologies are made throughout the book for its nearly exclusive consideration of only one kind of retail stores. It is explained that the methods which have been developed by intensive study and specialized research of department store executives can be applied with equal success to smaller businesses. For instance, while a large store might have ten girls keeping its perpetual inventory records up-to-date, a small store might need only one girl to do the same work. The principle would be the same; its application simply would be upon a smaller scale.

This is true within certain limits. The drug stores, are extremely few and far between, for instance, which are large enough to justify the employment of even one girl to take charge of stock and perpetual inventory records. What is a hard working man who is all alone in a small store to do? It would be perfectly possible of course, for him to devote a part of his time to maintaining perpetual inventory records. Then, however, the question becomes, is the value of the information obtained equal to the cost and effort required to get it? Many times it is not. There is a point beyond which the plans and methods used in large businesses cannot be reduced to fit the very small business. Even in such an elemental thing as departmentalizing of sales and purchases, there are thousands upon thousands of drug stores in the United States in which the effort and cost required to obtain such facts would not be justified by the possibility of profits to be gained.

The retail drug store is in a peculiar position. Selling mostly convenience goods, its growth as a retail store is very definitely circumscribed after a certain point is reached because people will not go far out of their way to buy convenience goods. Many druggists have surmounted this obstacle by starting additional stores. Unfortunately for them the book contains but one short chapter on chain store methods and that chapter is devoted to lines with problems remote from those of the drug trade.

The book does contain some individual ideas and suggestions which are worth the consideration of retail druggists and therefore parts of the book should prove interesting and profitable reading to them. However, the most direct and immediate applications of the ideas and principles discussed in the book are in the department store field because that is the field with which the book deals to the exclusion of almost every other retail line.

P. C. O.

Manual of Chemistry (with plates), W. Simon and Daniel Base. 13th ed., 1927. Enlarged and thoroughly revised by John C. Krantz, Professor of Pharmacy, University of Maryland. pp. xiv + 695. Lea & Febiger, Philadelphia. Price, $5.00.

This well-known work while presenting its subject matter, essentially in the same order as in previous editions and including additional topics assumes the aspect of a reference volume rather than a textbook. Professor Simon's work was originally designed for beginners in Chemistry as well as students of Pharmacy, Medicine and Dentistry and has after all these years served its purpose of usefulness to high degree. The reviser has devoted himself to a work which originally and on through the subsequent revisions by Professor Base, has been overburdened with non-essentials, particularly from the standpoint of its anticipated scope. The volume in its new edition covers almost every conceivable topic incident to general chemistry, having been brought up-to-date with

the very recent and contemporary progress of chemical science. The contents of the volume are, as in preceding editions, divided into four section, *i. e.*, fundamentals, general, analytical and organic, of which, the latter two have been revised in accord with the U. S. P. X. A new chapter treating of the solubility product principle has been added and the text dealing with Ionization, Colloids, Atomic Structure, Hydrogen-Ion Concentrations, Radio-Activity, etc., has been considerably enhanced by the reviser.

Among the newer topics included are items such as hexylresorcinol, insulin, etc., as well as the theoretical concepts of isotopes, and the electronic conception of valence as applied to organic molecules. The electron theory receives a comparatively adequate exposition, but this and so much related text is of no value to the class of students for whom the book is intended. This seems to be the great difficulty with the majority of chemistry texts for beginners; the authors introduce an excess of material which while superficial in most cases, should properly be defined under physical chemistry and which further, has a tendency to complicate rather than facilitate the student's conception of chemical principles.

The colorimetric determination of Hydrogen-Ion Concentrations is briefly but well treated; the mathematical interpretation of logarithms is inadequate; electrometric procedures are not mentioned in the text but are relegated to a footnote referring the student to works on Physical Chemistry. It is apparent that the principles of electrometric procedures are of greater value in the laboratory than a mere knowledge of molecular diameters, electrons, isotopes, etc. Consequently, the reviser if he wished to include some of the principles of theoretical chemistry could have better balanced the text by affording a more adequate presentation of the electrometric methods and only a bibliography to cover the electrical theories of the constitution of matter. Chapters on Spectroscopy and Optical Rotation are included in the appendix; the discussion treating of the arithmetical structure of the Specific Rotation formula in particular is exceptionally well presented. This is an important topic, yet one that invariably receives but scant description in the majority of textbooks of this and related types. The two important subjects that are thus merely appended to the work should properly have been included in the third section of the book.

The index of 22 pages is incomplete, *e. g.*, Van der Waal's principle is specifically mentioned under gases but is not listed in the index. More illustrations could be introduced with advantage, especially in the case of crystal types, melting-point determinations, etc.—yet these deficiencies are to a degree, fully compensated by the numerous colored plates representing 48 of the commoner chemical reactions. An impartial cursory examination of the text as a whole, impresses one that Professor Krantz has accomplished a good purpose on the basis of the material available, and the *Manual* will, as in the past, contribute its full share of usefulness to students of medical and allied sciences.

SIMON MENDELSOHN.
2300 W. 8th St., Cincinnati, Ohio.

Book of Methods of Agricultural Chemists.—The Association of Official Agricultural Chemists, holding their annual meeting in Washington, was addressed November 1st at the Raleigh Hotel by the Assistant Secretary of Agriculture, R. W. Dunlap.

Mr. Dunlap expressed the appreciation of the Department for the general services rendered the public by the Association, and more particularly, for the compilation of the book of methods for analysis.

"Glancing through the 32 chapters contained in the Book of Methods of the Association of Official Agricultural Chemists," Mr. Dunlap said, "one is really amazed at the tremendous amount of work which has been done in preparing this unusual and epoch-making publication in this particular field of chemistry. When we realize that all this work has been done voluntarily, without any thought of profit on the part of men and women engaged in public service, we are struck with the splendid service which has been rendered.

Early Medicine in Maryland.—The address of the President of the Medical and Chirurgical Faculty of Maryland, delivered at the Faculty-Building, Baltimore, April 26, 1927, has been published in the form of an illustrated booklet. The address gives interesting and valuable historical data and the binding adapts it for the library.

DEATH OF SAMUEL W. FAIRCHILD.

The sad news has just reached this office of Mr. Samuel W. Fairchild's death on November 13th. Sketch in next issue.